

# MANUFACTURERS' RECORD

A Weekly Southern Industrial and Hardware Newspaper.

VOL. 9. No. 17.  
WEEKLY.

BALTIMORE, JUNE 5, 1886.

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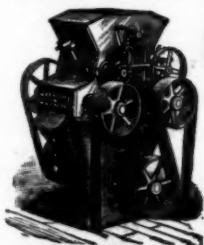
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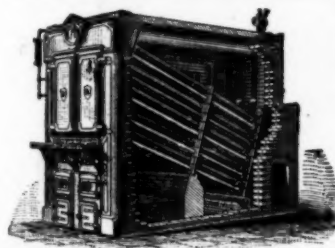
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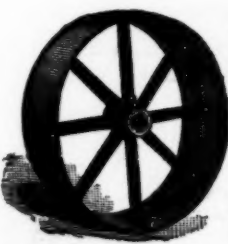
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Whole Pulleys from 9 inches to 120 inches diameter. Split Pulleys from 12 inches to 120 inches diameter. All widths of face up to 36 inches, crowning or straight, with single, double or triple sets of arms. Also Tight and Loose Pulleys. Absolute satisfaction guaranteed.

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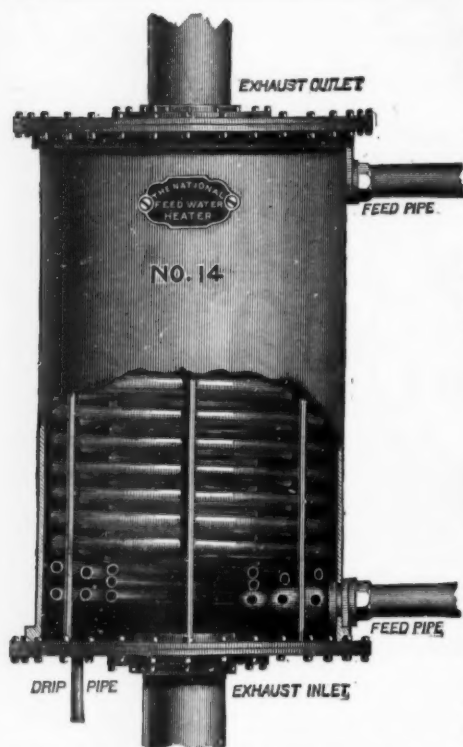
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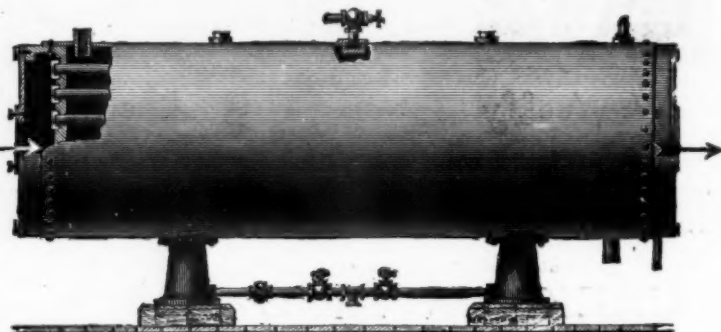


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## THE Morse Purifier

*Is not merely some other purifier laid down on its side, but is the only one that we have been able to find that is designed on correct principles. It is a Purifier that*



THE MORSE FEED-WATER PURIFIER.

NATIONAL FEED-WATER HEATER, 400 H. P. succeeds where others fail, and

that can be dismantled without removing the shell. It is full of merit generally, and is fortunately the **LOWEST IN PRICE** for a given capacity. For prices and detailed information, including Feed Pumps, send for our "Heater Circular."

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## Wiswell Ore Pulverizer and Amalgamator Combined.

The cost of this Mill is much less than any other machine of sufficient capacity to do the same amount of work.

It requires less power to run it, (10-horse being sufficient.)

The wear and tear of the Mill is much less than any other Quartz Mill doing the same amount of work, and the quality of the work done by it is greatly superior to work done in any other Quartz Mill now in use.

It crushes to a uniform fineness and makes no slimes, so that no sizing is required for concentration.

The Mill is equally well adapted to crushing and pulverizing of all classes of ores, either for amalgamation or concentration, and will pulverize and amalgamate from one-half to one ton per hour, according to character of ore and fineness of screens.

With ordinary care there is no loss of mercury by flouing, and consequent loss of gold, as in most other Mills where mercury is used in the Mill.

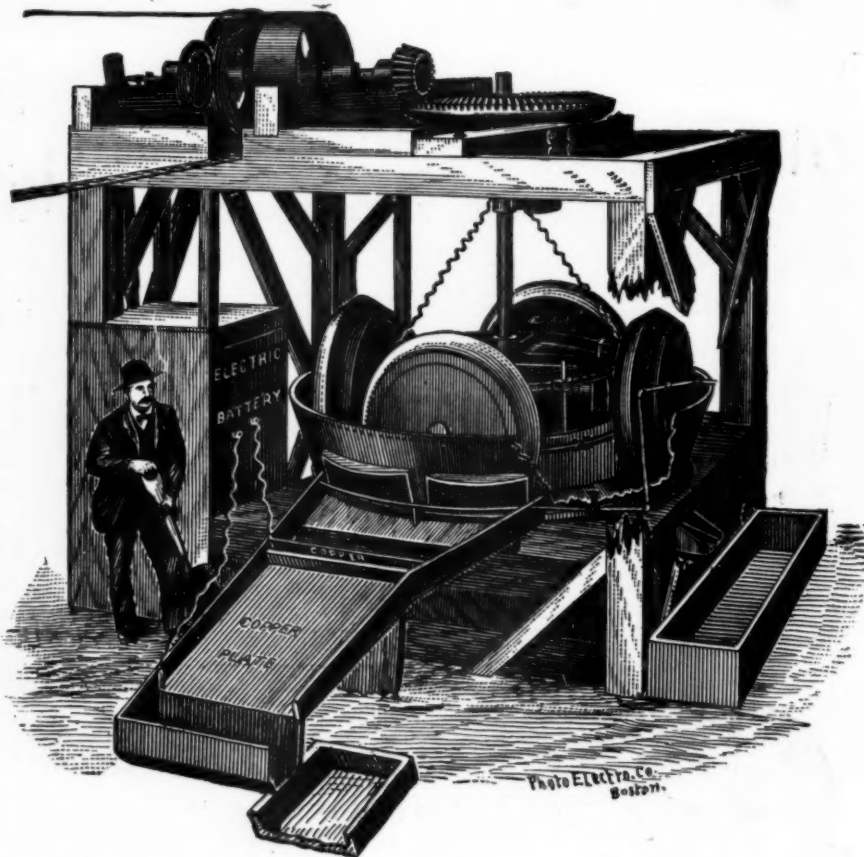
Amalgamation is carried on in the same operation with the crushing. The mercury is placed in the Mill in quantities varying from 10 to 40 pounds.

The application of electricity to the Mill for the purpose of cleaning and keeping the mercury alive has been to a very large extent superseded by the invention and introduction of the Mercury Trap in the Mill for the purpose of drawing off the mercury when charged with gold or on the slightest indication of flouing. By this ingenious device the mercury can be changed as often as desired without loss of time in either crushing or amalgamating. By opening this Trap the amalgam is discharged from the Mill in three minutes, and clean mercury introduced in its place.

To those familiar with running a Gold Mill this latter advantage will be greatly appreciated; in fact, it gives the mill-man full control of his work.

This Mill has been on exhibition at the foundry of Messrs. Bisbee & Endicott, at Chelsea, Mass., for the past 18 months, a good part of the time in active operation, and we have treated the most rebellious ores from many mining districts with most satisfactory results to the parties concerned.

The past year we have sold many Mills, which may be found in Michigan, North Carolina, Dakota, Montana, Idaho, Colorado, California, Mexico, Nova Scotia, etc. All those in operation are giving the most perfect satisfaction, as testimony will prove, and we will take pleasure in referring to any one of these on application.



We Furnish a Complete Mill for **\$2,500**, Delivered on Board Cars.

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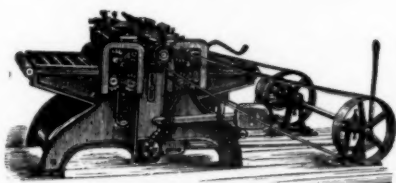
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11 and 13 S. Canal St., CHICAGO.

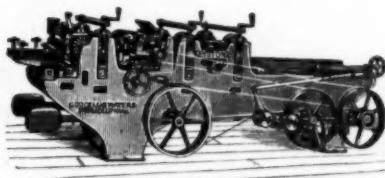
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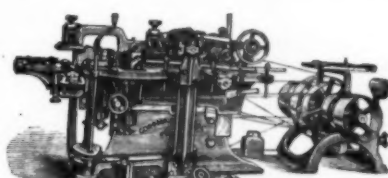
## IMPROVED WOOD-WORKING MACHINERY.



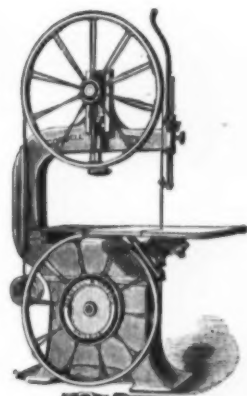
No. 2 Single Surfer.



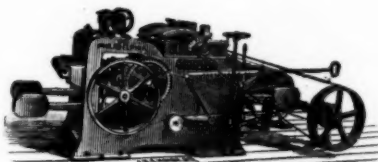
Keystone Flooring Machine,  
Surfacing 100 lineal feet per minute.



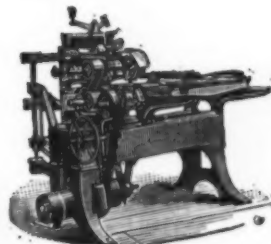
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The "Philadelphia" Endless Bed D. S.



Modern Tenoning Machine.

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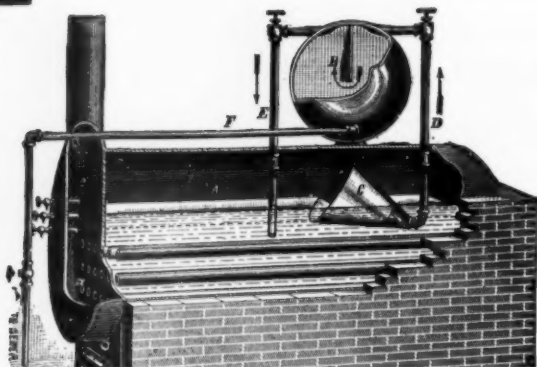
Every Machine is thoroughly  
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ranted as represented.

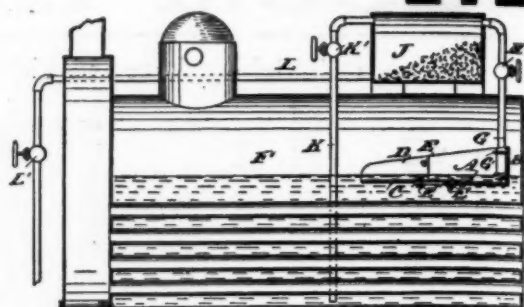
**FIRE****The Hotchkiss Mechanical Boiler Cleaner****STEAM**

Removes from Steam Boilers, Lime, Oil, Magnesia, and all other impurities of Boiler Water, and prevents Scaling, Foaming and Burning; but the object of this advertisement is to warn you against an INFRINGER named H. ESTELLE and his agents, who have been selling without patent or license from me, Boiler Cleaners, as shown by the cut on right hand side below. I take this method of informing the public in order that they may not further be deceived, as on August 4, 1885, a patent issued to H. ESTELLE for what he claims, as given in full with cut on right hand side below the cut, showing the HOTCHKISS CLEANER complete, except the shape of the Skimmer, which is an equivalent for my Funnel Skimmer.

**The Hotchkiss Mechanical Boiler Cleaner.**

CLAIM 1. The method of collecting impurities from the water-level of steam boilers, raised thereto by ebullition, by carrying them beneath said level and upward into a reservoir with an ascending current induced by the displacement of a cooler body of water in said reservoir, and depositing the impurities therein by precipitation, substantially as specified.

CLAIM 5. A bell-mouth or device having an enlarged receiving area for gathering the sediment, and suspended within the boiler by means of a pipe extending into the same from the upper shell thereof, the said bell-mouth and pipe constituting the induction channel for the upward current, carrying the sediment, combined with a reservoir and a return-pipe leading from the same to the boiler water, the whole forming a means of circulation for the boiler water, and for removing impurities therefrom, substantially as herein set forth.

**"How to Keep****BOILERS****CLEAN"****[Cut and Claim Copied from Patent.]**

Having thus described my invention, WHAT I CLAIM AS NEW, and desire to secure by Letters Patent, is—

1. The combination, with the settling-drum J, of the pipe G and the skimmer A, provided with an extension-plate, extended laterally, as shown, at its front edge, substantially as herein shown and described.

2. The Combination, with the settling-drum J, of the pipe G, the skimmer A at the lower end of the same, which skimmer has a flange, B, and the extension plate C, held by bolts on the front edge of the skimmer, and having end flanges, substantially as herein shown and described.

HENRY ESTELLE.

You will observe that my claims cover a METHOD of removing impurities from the water of steam boilers, together with an apparatus for producing that effect, which, since the grant of the original patent have, without warrant, been extensively used and sold by certain imitators of my invention. All parties making, using or vending the apparatus in question, or any apparatus substantially the same in principle and mode of operation, together with all parties using the METHOD claimed, regardless of the construction of the apparatus employed, are **Hereby Notified** that they are infringing my said letters-patent 1877 1883; and that a full accounting for moneys derived from such infringement will be required, and that my rights will be enforced, if necessary, by legal measures.

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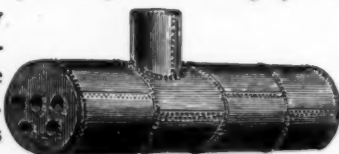
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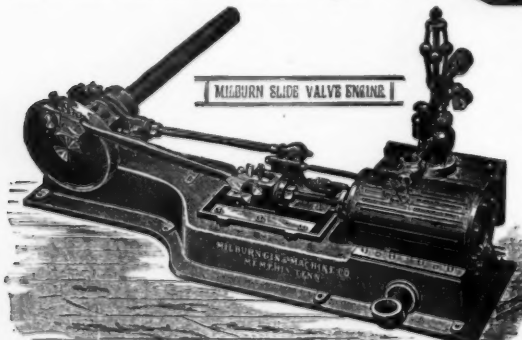
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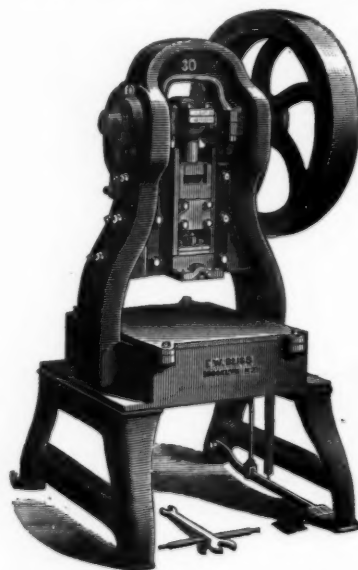
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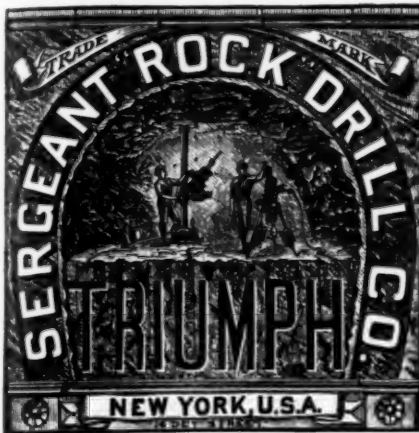
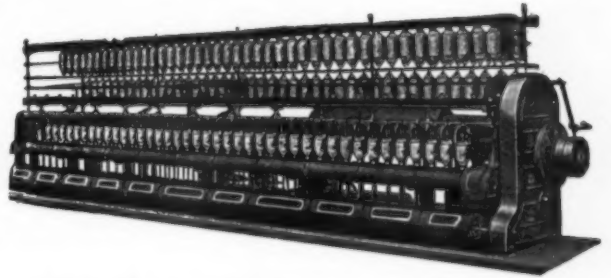
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The Only Method for Preparing the Ore for Amalgamation.

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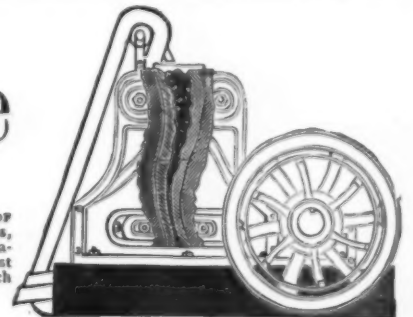
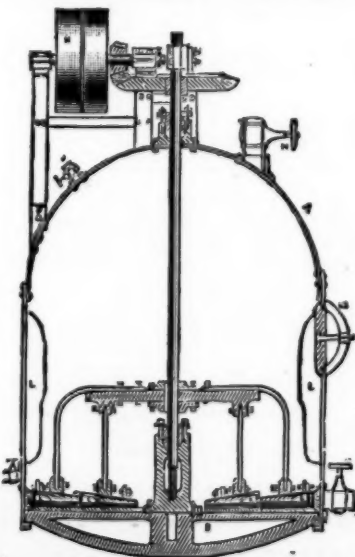
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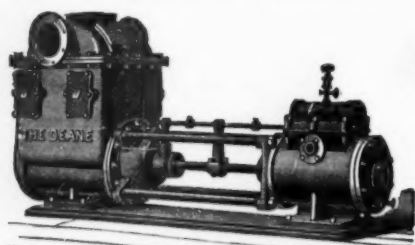
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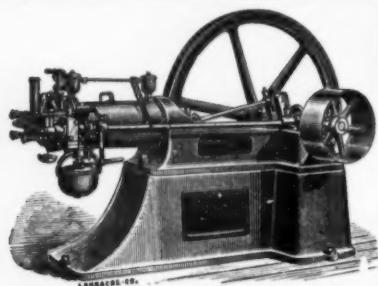
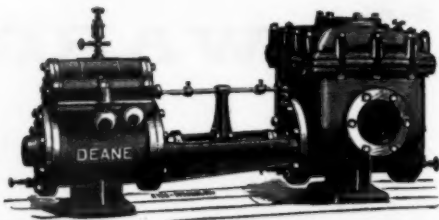
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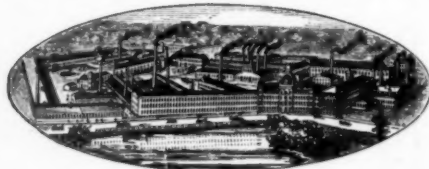
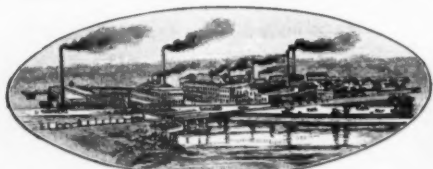
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| " " " " " "                         | 4 "    | ..... 5.00   |
| " " " " " "                         | 3 mon  | .....10.00   |
| " " " " " "                         | 6 "    | .....18.00   |
| " " " " " "                         | 1 year | .....32.00   |

Extra for outside pages and opposite first page of reading matter.

BALTIMORE, JUNE 5, 1886.

MR. ALFRED F. BRAINERD, of Birmingham, whose analysis of a specimen of iron ore from Florida was copied in our last issue from the *Iron Age*, in which there was a mistake, sends us the correct analysis, as follows :

|                 |       |
|-----------------|-------|
| Iron .....      | 57.73 |
| Silicia.....    | 1.81  |
| Phosphorus..... | 0.04  |

Mr. Brainerd says that this is a limonite or brown ore, and, as far as he has yet been able to learn, "occurs in deposits somewhere near Pensacola, and that there is considerable quantity of it."

THE pleasant relations existing between the Norfolk & Western Railroad and its employees is shown by the action of the engineers of that road, who, in view of the large cost involved in changing the gauge on June 1st, voluntarily offered their services to the company without charge for that day's work. The engineers of the Louisville & Nashville Railroad have taken the same step.

THE Daily Democrat, of Natchez, Miss., in editorially commending the work of the MANUFACTURERS' RECORD in behalf of the South, says:

"The attention of the world has been drawn to the South as a field for enterprise by the MANUFACTURERS' RECORD, probably to a greater extent than by any other single influence. In every number is published a list of every new industrial enterprises projected anywhere in the South, and thus manufacturers elsewhere are enabled to correspond with the projectors of such enterprises, and workmen can learn where it is probable work in their line may be in demand. In the number before us we find notices of ninety-two new industrial enterprises, either under construction or projected in the Southern States. \* \* \* Southern newspapers should, if they want immigration, follow the example of the excellent and thoroughly reliable journal we have mentioned, and bring prominently to the front the advantages of the South and leave off grumbling and growing over the memories of the past. Let us live for the future and we will have a prosperity hitherto not dreamed of.

In its numerous contributions from all sources upon the labor question which it has lately published, the St. Louis Age of Steel has had some very sensible ones and some that lacked that element. In a late issue of that paper the Rev. Dr. Wm. Fawcett, of Chicago, says :

"Here is my thought: Suppose you and I have a capital of \$1,000,000, and being practical mechanics we resolve to build a manufactory, say of reapers. We purchase the ground and construct the plant. Now, I take it that our capital therein invested by right should pay us at least 4 per cent. clear. I think 7 per cent. is too much; 4 per cent would pay us \$20,000 a year each, and I think with careful economy that amount would provide us butter on our bread and a bed to sleep in. Then, too, 4 per cent. is what the government pays clear of taxes."

In this proposition all dangers of business reverses are ignored. The man who takes the risk of investing his \$1,000,000 in business where the chances of failure and the loss of all he has are so very great, is not, according to this writer, entitled to any greater profit than the man who puts his \$1,000,000 into government bonds where every possibility of danger is eliminated. Under these conditions what inducement would there be for men to engage in manufacturing or in any other business? Mr. Fawcett has evidently written upon a subject he knows nothing about.

WHILE the people of some parts of the South are thoroughly alive to the development of their great resources, there are other sections having equally as good advantages which are comparatively unknown, owing to the lack of enterprise of the people. The Huntsville (Ala.) Mercury, in hitting at some of the failings in this respect of the Tennessee valley, strikes a good many other sections also. It says:

Undoubtedly too much attention is given to talking politics by our people; undoubtedly too little attention to those questions and enterprises which would be the means of inducing a thrifty and industrious population to come here, buy up our surplus lands and improve them, and the inducement of capital to seek investment in our midst. It would be a most beneficent revival that would convert our people from lethargy and lack of interest in material interests to a deep and lasting excitement over our splendid resources, better systems of agriculture, more railroads and manufactures. These are subjects over which it would immensely pay our people to get thoroughly aroused—excited if you please—and never lose the fever.

THE long-talked-of furnaces to be built at Birmingham by Mr. Samuel Thomas and associates, of Pennsylvania, seem at last to be definitely determined upon. Mr. Thomas has advertised in the Birmingham papers for 1,000,000 brick, and also for proposals for erecting brick buildings at the place where the furnaces are to be located. The general report is to the effect that Mr. Thomas will first build one furnace to have a capacity of 1,200 tons a week, to be followed by

another furnace and possibly other enterprises later on. A more emphatic endorsement of the South's iron making possibilities than this action on the part of the leading and most conservative iron makers of Pennsylvania could hardly be asked.

**The Necessities of the North and  
the Opportunities of the South.**

The remarkable growth of the industrial interests of the South during the last five years has everywhere attracted much attention. That the South is to be developed at the expense of the North is regarded as inevitable by many. Instead of this, however, the prosperity of the South is almost certain to add to the prosperity of the North. Here and there some line of manufacturing in the former may supplant the same in the latter, but as a whole the business interests of the North are destined to be benefited by the marvelous growth of the South, unless these sections become antagonistic in their industrial affairs. A very interesting pamphlet just issued by Mr. Wm. L. Breyfogle, of Louisville, Ky., presents some striking suggestions upon this matter, and from it we make the following extracts:

The necessities of the North and the opportunities of the South were never so well calculated or so happily timed to give to each section immediate and great prosperity—necessarily resulting in a cordial and thorough union of interests and feeling—as those which exist to-day. The situation in the South is such as to promise for itself unprecedented development and growth in wealth, and for the North a great and lasting revival of all its industries, if only good sense and good feeling shall reign and the causes of present depression and disturbance shall be honestly and fairly sought for and considered with a view to the common good of both sections.

The North and the South must now become either allies or rivals. If the first, both sections will gain unprecedented prosperity. If the last, then, while the North must lose much, the South will gain something, but far less than if both sections move together. In other words, the South can grow in a way to build up the North, or it can grow at the expense of the North. Nothing can prevent its growth, but it is for the North alone to determine what share or part she will take in Southern development, for, beyond any question, the "forks of the road" have now been reached.

To make these statements plain, Mr. Breyfogle points out the rapid growth of the North during the last thirty years under the stimulating forces of three great systems of laws operating upon a public domain of half a million square miles of the most fertile land in the world, lying north of the Ohio and between the Appalachian chain and the Rocky Mountains. These laws are the homestead laws, the land grant laws and the tariff laws. Under these laws, the territory upon which they operated directly, as well as all the Northern States east of the Rocky Mountains, have been developed to a point fifty years in advance of any development that could have been made under

conditions such as existed during the past thirty years in any portions of the earth's surface of equal area. After showing how, under these circumstances, the North prospered so greatly, it is said:

But one thing could check this movement. Whenever the Northern States should outgrow their markets, domestic and foreign, then the movement would be checked and the tide of capital and labor flow elsewhere.

The questions then are, first, has the North out-grown its existing market? If not, then the North must, until that condition shall be reached, continue to be the best field for investment, and Southern investment is of minor importance. Or, second, if it has outgrown its market can it find a new foreign market large enough to support its increased development at the rate of its past growth? If so, then it is still the best field, and Southern investment is a side speculation. But if not, then Southern investment must take the lead, for no sane man will undertake to say that the North, without additional markets, can maintain its proportion of eighty per cent. of the wealth of the country, nor can the Eastern States supply an additional market for Western products.

Mr. Breyfogle then shows that the Western farmers have lost their control of the breadstuffs markets of the world through the development of wheat production in India, Australia and elsewhere, and that the West has reached its full growth for some years, or, at least, such growth as will continue to furnish employment to the enterprise and money of the East. From the high tide of prosperity reached in 1880, 1881 and 1882 there has been a reaction. He says:

Wide margins of profits are gone. The farmer has met with new competition in foreign markets, with a lessened relative demand and lower prices at home; the demand for material for construction has largely dwindled to a demand for purposes of repair, and the sharpest of competition has set in in consequence and the tariff cuts but small figure in regulating prices simply because the home supply is in excess of the home demand and our foreign commerce is small and conducted through the medium of a foreign-carrying trade which drains us instead of feeding us. This lets down the weight of the workman and his purchasing power is restricted. The railroad system of the North—a system constructed with a rush and upon a theory that the future growth had no limit and backed by eager capital equally short sighted, a system very largely swelled in its capitalization by water—is finding that instead of having another great empire to build in the West it is coming down more and more to the work of hauling out a diminished volume of freight for Eastern consumption and export. In a word, for five years past the entire North has been entering upon a period of re-adjustment of values both of property and labor. Taking together the Northern farmer, manufacturer, and railroad man as a firm, they may be likened to a great firm of railroad contractors who have performed an enormous work, at great profit, have invested all their profits as they went along in more plant to carry on railroad building, have completed their work, been fully paid off, but can not sell their mules, their wheelbarrows, or their tools, and can not even discharge their men. They must either find a new contract at once, and an enormously large one, larger than they had before, to employ their force and plant, or else they must live on mule meat and wheelbarrow

Where are they going to find this new contract? Abroad? It will take twenty years at least to build up a foreign commerce



and a foreign carrying trade. We must get a new crop of Congressmen to consider these questions. Internal affairs and internal prosperity have absorbed our legislation, and the consideration of our bankers, our merchants, our capitalists, our manufacturers. We must make commercial connections, find out wants and exchanges, change our laws, build ships, man them by crews who can compete in skill and in wages with the commercial nations of the world. All this will take time, twenty years at least. That will not do. We must find a contract nearer home.

We have one field, and only one—the South. The necessities of the North imperatively demand that it shall work this field. The investor in the North or abroad who now enters this field has the entire wealth of the North as security that the South will be rapidly developed. A good part of the manufacturing depressions of the North is caused by Southern competition, notably in iron. The South can make iron and lay it down at the manufacturing and trade centers of the North at a profit far less than the actual cost of manufacture in the North. It can do this to-day. It has been able to do it for several years past. It can continue to do so. It can do it because the small flow of investment that has gone into the South, so far, has naturally sought that in which there was the quickest and surest outcome, and the manufacture of iron has increased more rapidly than the general growth, and thus sought a Northern market for want of one at home, and has disturbed and depressed the iron trade of the North.

To generally develop the South in such a way that it will consume the products of its own manufacturers and create such a demand for the surplus capital and products of the labor of the North as the West created for the East is the necessity of the North to-day. It is feasible. The time is ripe. The way is open. There is no other field on earth open to the North to be worth serious consideration; none that will meet the necessity of the case, or a tithe of it.

It is claimed that the West is still growing, but analysis will show that it is a growth by transfer more than by addition. Take, for instance, the two most notable spots, Kansas City on the south, and St. Paul and Minneapolis to the north, of Chicago. Each has grown at the expense of Chicago. Each has grown because of the pinching off of the profits and the necessity of transferring the two largest interests of Chicago—the packing interests and breadstuffs—to cheaper points. A study of the facts, coming up every day, will bear out this proposition in innumerable directions. The field for new growth is in the South. It must be developed equally with the West and the East. The doing of this will, for twenty years, afford every man in the North work at good wages, will employ all the surplus capital at a profit and set every wheel turning. The American people can not stand still, and will not go backward. They belong to the order of dynamics, not statics.

This brings us to the question as to the opportunities of the South, and the openings there where capital is likely to make its first and quickest returns. In a general way, this answers itself by saying in those portions where land is the cheapest and natural wealth greatest, provided there are no serious drawbacks in the way of unhealthiness, an enervating climate and bad water.

#### THE OPPORTUNITIES OF THE SOUTHERN STATES.

The natural wealth of the Southern States is very much greater than that of the North. Taken all in all, it would probably be within bounds to say that it is as two to one. It is, in truth, wonderfully rich in all the gifts of nature, climate, soil, water courses, water power, timber, coal, iron, clay, stone—all the metals and minerals of common use to the world. It is within bounds to say that

it has double the foundation of natural wealth on which to build an empire that the West had. Is it too much to say that in the present condition of the North, with the idle plant and capital forced into inflated enterprises for want of other fields, the South has in double measure the conditions of Northern capital seeking investment of product and plant to make it, seeking a market, that the West had in Eastern capital and plant and necessities thirty years ago? Is it too much to say that with the enlarged capital and more pressing necessities of the North of to-day, with the advantage of all that the North has gained in experience in the last thirty years in developing and capitalizing a wilderness—with all this added force operating upon a richer field; with a development begun in all ways, and railroad communication already established between all parts of the South in a skeleton way; with the North pouring out upon the South the flood of capital she has so long exclusively absorbed, monopolized, and kept from the South—with all this change, is it too much to say that twice as much wealth can be created in the South in the same period of time as was created in the West? Or, to put it in another way, that in fifteen years as much wealth can be created in the South as has been created in the West in the past thirty years. Is it too much to say that out of the creation of this wealth in the South by and through Northern capital and labor, as great a proportionate gain will go to the North from Southern development as went to the East from Western growth? Is it too much to hope that out of such unity of interest will grow a community of feeling as strong and lasting as that which grew up between the East and West, and which stood the severest of all possible strains—standing together through a civil war? What, then, can hinder, prevent, divert, or delay? No earthly power can stop this movement. The time has come for it. The necessities of one section have met the opportunities of the other, and we are at the threshold of an advance in development in the South greater even than was before the West thirty years ago.

THE letter found elsewhere, signed "Pluck," has been sent us for publication by a leading stockholder and officer of the company that is building up the town of Sheffield, Ala., and who is also an officer in the company recently organized to build a furnace there. He places his name at our disposal to be given to any one who wants proof of the claims that have been made for Sheffield, and evidence of the falsity of the statements that have emanated from the source he refers to.

AT the annual meeting of the stockholders of the Fishing Creek Cotton Manufacturing Co., of South Carolina, last week, a dividend of 13 per cent. was declared—not a bad showing for a dull year.

THE Melrose Cotton Mill, of Russellville, Ark., which has been closed for eighteen months, will start up this week under the management of Shinn & Kimball, employing about 75 hands.

THE MANUFACTURERS' RECORD has made a specialty of noting Southern industrial progress, and the value and accuracy of its labors can neither be estimated nor properly appreciated. The whole South owes a deep debt of gratitude to this paper that it cannot repay.—Atlanta Evening Capitol.

## OUR BIRMINGHAM LETTER.

### Growth of Protection Sentiment in the South—Changing the Railroad Gauge.

[Special correspondence MANUFACTURERS' RECORD.]

BIRMINGHAM, ALA., May 31, 1886.

Everybody in this part of the country is looking forward to active business again after the change of gauge on the Southern railways, which was effected successfully on yesterday. For some days previously shipments had been at a standstill, and traffic generally depressed. The change will prove of immediate benefit, since, pending its accomplishment, a large amount of fresh rolling stock, constructed to meet the new requirements, has been unavailable to the annoyance of coal miners and manufacturers. We shall start out now with standard railway gauge everywhere, and with facilities considerably increased. As far as reports have been received, the work has been performed with little trouble and within a few hours. It will result in placing the South in closer relations with the remainder of the country than ever before.

As noted in former letters, the labor troubles East and West have taken the starch out of the iron market, as far as sales are concerned, here as well as elsewhere, and there has been some, though a moderate, accumulation of stocks in consequence. Within a week past, however, there has been a much better feeling among our Western customers, and an active enquiry for mill irons. Eastern orders are fair, with a prospect that there will be some activity in foundry irons for shipment in that direction this week. Production has been restricted at many important points, and that fact will tend to create an opening for a good deal of Birmingham iron during the next few weeks. Prices remain unchanged.

In the way of new enterprises there is nothing of particular moment to record. The pipe works, it is said, finally went to Chattanooga, where the parties had purchased property before they had visited Birmingham. There are three engineer parties out on the lines of the Kansas City, Ft. Scott & Gulf surveys, and Captain Grant thinks it will be the middle of June before grading can commence. As soon as it does, 3,000 men will be put to work and the road finished 100 miles out from Birmingham this year. The extension of the mineral railway is being pushed rapidly. Work on the de Bardeleben syndicate's plant at Jonesboro progresses, and all the other improvements hitherto mentioned in these columns are well under way. Repairs are being made to the Woodstock furnace, which is to be the scene of Dr. Pratt's experiments with his new process for dephosphorizing ore, and in a short time it is believed here that there will be interesting developments.

The tariff agitation is on again, and it is pleasant to observe that the missionary work performed in the past by the MANUFACTURERS' RECORD, the New Orleans Times-Democrat, and a few other progressive journals, has begun to bear fruit. The Birmingham Age, which has been always on the right side on this issue, has recently taken a stand on the tariff and internal revenue quite as radical as we have ever done. Probably its views in that direction were not much modified by some remarks recently made by the Louisville Courier-Journal, in which the Age and several other Southern papers were hauled over the coals rather severely for deserting the old moss-covered flag of free trade. During a considerable residence in this section, it has

been my privilege to witness many astonishing changes in the country and the people, but in no connection have I ever found anything quite so surprising as the transformation in sentiment produced within the past year by the protection propaganda of the few progressive papers that have advanced and maintained American principles in regard to native industry. The Courier-Journal, a most unwilling witness, frankly acknowledges the new departure of the live elements of the New South. It considers with evident regret that five out of the eleven daily journals of Alabama are avowed protectionists, and that eleven influential daily papers published in other Southern States are like minded. Perhaps it is useless to go over the ground again, but what I ventured to predict several months ago is happening now with the farmers. I then stated that just as soon as the planters of this section should realize that the tariff was not a question interesting manufacturers alone, but was quite as vital to the prosperity of American agriculture, they would come over in a body, and that they are dropping over the free-trade fence on our side of it, is a matter of notoriety. The development of the Indian and other foreign wheat, rice and cotton productions, the menace of peon and coolie sugar from Mexico and the Hawaiian Islands, and many considerations of that sort, have brought the matter straight home to the pocket of the honest farmer, and there is not a body in the world who can appreciate a concrete proposition aimed at that tender spot better than he can.

Even more surprising than that the provincial press of the South should take an advanced protection stand, is that some of its best exponents, like the Birmingham Age, should go to the length of attacking the wicked partnership between the general government and the whisky ring. It only goes to show that political education is a rapid growth in these days. And, as revolutions never go backward, now that the movement has commenced, we may be reasonably assured that the whisky internal revenue system, which constitutes an eternal threat against proper protection to legitimate industry and labor, will find active and able enemies throughout the New South. Every day there are converts to the cause of home interests, and as these days roll on it will be easier and easier to crystallize the sentiment into a movement that may gather power enough to sweep out of existence the whisky blot on the administration of the country. The MANUFACTURERS' RECORD shibboleth, that the internal revenue must go, in to order give peace to honest industry, is fast becoming a popular proposition.

The Western Florida Fair Association has done a wise thing in proposing a valuable premium to the inventor who shall exhibit at the fair next December, at Lake De Funiak, an apparatus for the drying of shell and other fish. In China the natives have a process by which fish and oysters are sun dried, and remain edible and palatable for an indefinite number of years. It is thought that if something of the kind could be done here a vast industry would certainly grow up on the shores of the Gulf of Mexico. One of the brightest and most progressive citizens of Pensacola, Mr. T. T. Wright, I believe, suggested the matter to the fair association. He has given the subject a great deal of attention, and told me the other day that he felt certain the day would come when fish would be shipped all over the country by the thousands of bales just as cotton is now. The gulf fisheries are the richest in the world, but their product reaches only a few markets, except expensively in refrigerator cars. A practical method of curing would send it broadcast over the land as a cheap and acceptable food for the masses. G. B. WEST.



## Sheffield, Ala.

SHEFFIELD, ALA., May 29, 1886.

Editor *Manufacturers' Record*:

My attention has been directed to an editorial in the *Tradesman* of May 15th, headed "Sheffield Again," which does great injustice not alone to the projectors of the Sheffield enterprise, but a large class of persons who bought property in good faith and are earnestly engaged in making substantial improvements with full confidence that the day is not distant when Sheffield will hold a position in the commercial world equal to that of its properous neighbors. As a member of the latter class, I fully realize the injury to individual interest arising out of a publication having no foundation in fact, and scattered broadcast for a purpose best known to its author. This being the second attempt of the *Tradesman* to detract from Sheffield, by publishing innuendoes most foul in conception, it may become effective in a quarter least to be expected by that journal. For be it known that our people patronize Chattanooga interests largely, and if the *Tradesman's* tirades have a backing in that city, which I doubt, it will not be amiss to say there are other markets within reach of Sheffield. The *Tradesman* admits its ignorance regarding Sheffield matters, yet undertakes to write down an enterprise backed by *bona fide* capital and under the management of gentlemen, who for fair dealing and commercial credit, as well as social position, "stand without a peer," and are as far above engaging in any venture tainted with fraud as the *Tradesman* is from coquetting with that virtue which some seek at the "bottom of a well." The acute faculty displayed by the *Tradesman* in looking for facts in every other but the right direction must impress its readers with the belief that this self-sacrificing journal, in its efforts "to foster the great industries" of the country, regards truth in the light of a jewel of such rarity as to be handled with economy. In a late issue of the *Tradesman* is to be found a correct list of the Sheffield directory, copied by that paper from the "North Alabamian." In that list appear the names of the Hon. David Clopton, judge of the Supreme Court, Ala.; W. L. Chambers, Esq., cashier First National Bank, Montgomery, Ala.; Judge H. B. Tompkins, Atlanta, Ga., and others, whom the general public will recognize as being beyond the reach of the puerile efforts of the *Tradesman*, and yet it has the effrontery to say, "several gentlemen whose names have been bruited in connection with this enterprise have repudiated such connection when approached by responsible parties." Thus, this honest (?) fago, with the names of the Sheffield directory before his eyes, could not afford the expenditure of a 2-cent postage stamp, addressing any of the 13 gentlemen composing the Sheffield board for the purpose of arriving at the true condition of the Sheffield enterprise. Ah! Mr. Editor, the *Tradesman's* "esteemed cotemporary" at Cleveland, in commenting on a former attack on Sheffield by the *Tradesman*, struck the keynote when it suggested that the *Tradesman* "may be jealous of Sheffield." Who knows but that the *Tradesman* in its Quixotic rambles stumbled on the fact that Sheffield, but two years old, has more capital represented in manufacturing establishments and other improvements than Chattanooga could display the first 20 years of its existence. It is well known to the readers of the *Tradesman* that it is but 5 or 6 hours' run from Chattanooga to Sheffield, both cities being connected directly by rail. If the *Tradesman* hankered after facts, its trusty representative had every opportunity for spying out the land which seems to unsettle the nerves of so many people in and about the "overflowed district" whenever Sheffield is mentioned in connection with manufacturing industries. But what is to be expected of a journal that in its blindness admits having seen a map of Sheffield "once, only once," and with gravity

points its long ears and says, "We didn't examine it?" How this astute journal brags over our "resolving" to build a furnace, at the head of which enterprise stands Horace Ware, of Birmingham, the man who built the first blast furnace in Alabama, and who is recognized as one of the most successful iron manufacturers in the South. In exposing the unwarrantable attacks on Sheffield made by the *Tradesman*, I do not propose entering into any detail of what Sheffield is or what may be predicted of its future. The road to our city is not blocked by toll-gates, but is open to everyone, whether he be a disciple of the *Tradesman* or a seeker after truth.

"PLUCK."

## The Pen Rhyn Slate Quarry.

WYTHEVILLE, VA., May 25, 1886.

Prof. C. R. Boyd, in a report to Mr. Chas. G. Eddy, Esq., vice-president Norfolk & Western Railroad, Roanoke, Va., on the Pen Rhyn Slate Quarry, which is owned by the Bristol Slate Mining Company, and located six and one-half miles south of Montgomery's Switch, Washington county, Va., says:

"In the month of April of this year I made a very careful inspection of the slate quarry of the above company, situated on the north bank of the South Holston river, on the same side of the river as the Norfolk & Western Railroad, and six and one-half miles south of that road at Montgomery's Switch, Washington county, Va.

I found the quarry well opened immediately on the north bank of the South Holston river, showing a true face over 80 feet square, with a pitch above 60 degrees from the horizon, and the face of the slate exposed over 80 feet above the water's edge in the river. The measure of the marketable variety of this bluish-gray slate is over 250 feet between its enclosing walls, and shows the same character and general elevation above water for more than 1,500 feet in length, in a direction northeast and southwesterly.

Its cleavage seems all that could be desired, yielding the slate of any desirable thickness, and the size of the pieces may be anything from 12 by 20 feet down. Its present use may be indicated by the fact that the superintendent of construction of the Southwestern Lunatic Asylum at Marion, Smyth county, Va., has contracted for a large quantity of slate from this quarry for flooring and stairway purposes.

Its mining appears unusually cheap and expeditious, and the fact that the quarry owners have 198 years' lease on the property, and a river flowing by of about 250 cubic feet discharge per second, with a fall of over 5 feet on the leased property, renders the question of cost of preparing the slate for market in any size or thickness merely nominal.

The slate company is now erecting machinery and cutting a mill-race to bring the water of the river to it.

The cost of constructing a tramway from Montgomery Switch to this quarry may be within \$18,000 or \$20,000 all told; and when the fact is brought forward that this neighborhood also yields the excellent red iron ores, which contain over 60 per cent. of metallic iron and less than .005 of phosphorus, and there are large untouched forests also of poplar, white oak, pine, and other valuable trees, such as chestnut, oak, &c., the timber of which can be easily rafted down to this point, any form of railway built to this quarry from Montgomery's siding of the Norfolk & Western Railroad can be made to pay well for its construction and maintenance.

Should this slate be found to take enamel well, as I think it will when more fully opened, it will be the best slate quarry it has been my duty to examine, as it unites extraordinary facilities for mining with unlimited water power at the quarry for running any kind of machinery."

**THE Milburn Gin & Machine Co.,** Memphis, Tenn., writing to us on a matter of business, say at the close of their letter:

We have received some orders through the advertisement and notices in your valuable paper and quite a number of inquiries, and are satisfied that our investment in advertising with you is very good for us. We have made shipments of our patent wood-split pulleys in the last few days to Boston, Portland, Me., and San Francisco. We are building a car load for shipment to Boston. Our trade is very fair in all lines of our business. The increase of our pulley business has compelled us to add largely to our machinery for building them. Our capacity in a few weeks will be 200 pulleys per day.

**THE Brierfield Coal & Iron Co.** have completed their railroad to the Bibb furnace, which they expect to blow in about July 5th. The Bibb furnace is, we believe, the oldest in the State. It was noted during the war for the fine quality of charcoal iron it turned out. The present company intend to run it on coke, and the well-known superior quality of the Brierfield ore will make an excellent brand of pig iron.—*Southern Mining and Manufacturing Journal.*

## A Fine Country That Needs Railroad Facilities.

Mr. J. A. Thorn, of Mill Spring, Polk county, N. C., writes to the *MANUFACTURERS' RECORD* regarding the excellent climate and resources of that section and the need of railroad facilities. Polk is undoubtedly one of the most favored counties in Western North Carolina as regards climate, sheltered as it is from the cold winds of winter by a mountain range that encircles it on the North and West. Added to its health-giving climate are great natural advantages, in the way of minerals, timber and fine farming lands. With adequate railroad facilities, it would be rapidly developed by Northern and Western people, some seeking health in its delightful climate, and some looking for a pleasant home with openings for profitable business in mining, manufacturing and farming. Along the hill and mountain sides both the land and the climate are excellently adapted to fruit and tobacco raising. Peaches, pears, apricots, cherries, grapes, and berries of many kinds do remarkably well, ripening early enough in the spring to make their cultivation for Western and Northern markets a paying business. On the river bottoms the land is very fertile, producing abundant crops of cereals. Possessing the many advantages that this county enjoys, it only needs railroads to open it up to the world to induce a large immigration of well-to-do people. At present, one railroad—the Asheville & Spartanburg—passes through one corner of the county, striking, however, mainly the mountainous part, and for about 10 or 12 miles, or from Tryon to Saluda, it climbs one of the steepest grades in the country, zigzagging around the mountain in its ascent. Along this 10 or 12 miles there is, it is believed, no station, or if any, only one, and hence little or no business for the road.

Now, if the owners of this road would make a circuit of about 16 miles or less, commencing at Tryon and extending to Saluda, they would avoid this steep grade, which is now very troublesome, and open up a country that would yield them a heavy freight traffic. This new line starting from Tryon would follow the river bottoms, where the expense of construction would be light, strike Columbus, the county-seat, then to Mill's Spring, a thriving village having some 5 or 6 stores, and draining the rich valley of Green river, would pass through a gap in the mountains by an easy grade and reach Saluda, from which point it would, of course, continue on the old line to Hendersonville

and Asheville. The section of country that would be opened up by the construction of this short line is now entirely without railroad facilities. Its attractions and resources are very great, and even at the beginning it would furnish a fine freight business, which would steadily increase, as the country once supplied with transportation facilities would very soon attract a fine class of settlers. The county would probably vote a liberal subscription to aid in paying for the construction of this road.

## The Cotton Harvester Quarrel.

Now that there is some prospect of the long-needed cotton harvester being brought out, several inventors claiming to have perfected a machine that will successfully do the work, a legal fight is to be inaugurated as to the rights of two of these inventors. The Bugg harvester, about which there has been a good deal said lately, is claimed by the Mason Cotton Harvester Co. to be an infringement upon their patents. This question must of course be left to the courts to decide. The Mason Company, in a statement of their side to the *Charleston News and Courier*, through their attorney, says:

"It appears that Mr. Bugg, or his company, the United States Cotton Harvester Company, proposes to continue to claim the right to use and manufacture that which was refused them by the patent office, and to infringe the patents issued to Mr. Mason and owned by the Mason Cotton Harvester Company. This fact was brought to the attention of the stockholders of the Mason Cotton Harvester Company at a meeting held in Charleston a day or two ago, and it was determined by the directors at once to take legal proceedings for an injunction to prevent the continuance of such infringement and for the damages caused to the Mason Company thereby.

While the machine as built by Mr. Bugg is, to a certain extent, only a clumsy and impractical imitation of the Mason harvester, it nevertheless embodies some of the leading principles of the Mason machine, and which are especially protected by its patents. It is, therefore, not only a direct infringement of our patents, but is an absolute cause of damage to us, because it exhibits our inventions in such a clumsy and inferior form as to bring our machine into discredit, and create the impression that the Mason cotton harvester is as incompetent a machine for the purpose desired as, in the opinion of the Cotton Exchange and others who have seen it, the Bugg harvester has proved itself to be.

The legal proceedings determined upon by the Mason Cotton Harvester Company will be instituted just as soon as the proper papers can be made out, and will be pushed with all vigor. Inasmuch as the very points which will be in controversy, in these proceedings, were in issue in the patent office between Bugg and Mason, and were the subject of protracted and earnestly contested litigation by very able counsel representing both sides, and resulting in a judgment in every point in favor of Mason, we entertain little or no doubt as to the result of an application to the courts."

**CORRESPONDENCE** relating to the manufacturing, mining, lumbering and all other material interests of the Southern States is solicited. Reaching so many capitalists in all parts of the United States seeking profitable investment in the South, the *MANUFACTURERS' RECORD* offers an excellent chance for the people in that section to place the advantages of each locality before those likely to be interested. We will take great pleasure at all times in telling what has already been accomplished in the South, and showing up the opportunities of doing still more.



# CONSTRUCTION DEPARTMENT.

**WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.**

## ALABAMA.

The Birmingham Gas Light and Illuminating Co., Birmingham, Ala., will spend \$40,000 in enlarging and extending their gas and electric light works.

John C. Allen has the contract to erect a \$10,000 seminary building at Anniston, Ala.

Charles Lee will erect a steam laundry at Birmingham, Ala., at a cost of about \$2,000.

A saw and grist mill is being erected at Jonesville, Ala., by A. H. McDaniel.

The Sloss Furnace Co., Birmingham, Ala., will build a railroad from Irondale to Murfree's valley.

A \$6,000 synagogue will be erected at Birmingham, Ala.

The Pioneer Mining & Manufacturing Co., Birmingham, Ala., previously reported, will receive through B. E. Grace bids for manufacturing 1,000,000 bricks and for the erection of several brick houses. Will build one furnace at once.

The Montgomery & Florida Railroad Co. has been organized at Montgomery, Ala., with C. W. Scofield as president; M. P. LeGrand, vice-president, and S. D. Hubbard, secretary and treasurer. The company will extend the Montgomery Southern Narrow Gauge to Chattahoochee, Fla., and make it standard gauge. The Southern Railway Construction & Land Co. has been organized at Montgomery, with C. W. Scofield as president, to build the above extension.

A handle and spoke factory will be started at Hartselle, Ala., by John A. Rogers. The machinery has been purchased.

The Excelsior Foundry & Machine Shop, Birmingham, Ala., reported last week as incorporated with E. R. Jones as president, have purchased a site and will begin the erection of their buildings at once.

The Huntsville Street Railroad Co. has been incorporated at Huntsville, Ala.

Floyd & Stevens will erect a mill at Opelika, Ala., two stories, 45x70 feet.

It is reported that the money to build a cotton compress at Anniston, Ala., has been subscribed.

J. H. Phillips, of Canton, O., reported last week as to start a bolt and nut factory at Birmingham, Ala., has, with C. W. Wood, of New Orleans, La., purchased a site for such a factory.

A jug factory has been started near Anniston, Ala., by George Eichelberger.

## ARKANSAS.

The North Arkansas Railway Co., capital stock \$250,000, has been incorporated in Arkansas with William FarreM as president, A. L. Horner, vice-president, and Thomas Lafferty secretary and treasurer. The road will extend from Ravenden in a Northerly direction about 25 miles, and will open up large tracts of mineral lands.

It is stated that the St. Louis, Arkansas & Texas Railway will spend about \$100,000 in erecting large machine shops near Pine Bluff, Ark.

The Memphis & Little Rock Railroad have decided to extend their road from Little Rock to Hot Springs, Ark.

Mr. Pumphrey contemplates erecting a saw mill near Bear, Ark.

Water works will probably be built at Russellville, Ark.

D. Bay & Co. have purchased 8,000 acres of timber land near Harrisburgh, Ark., and will erect a large stave factory.

It is reported that Solon Ferguson, Moark, Ark., will rebuild his saw mill, previously reported as burned.

## FLORIDA.

The Orange Belt Investment Co., capital stock \$500,000, has been incorporated at Oakland, Fla., by P. A. Demens, Andrew Johnson, A. M. Taylor, Henry Sweetapple and Joseph Henchen, to deal in land, do a contracting business and manufacture wood and iron.

H. T. Lykes will erect a four-story brick building at Tampa, Fla.

Brown & Walker, Orlando, Fla., will erect a three-story brick building, 60x61 feet.

It is reported that P. M. Snowden, of Baltimore, contemplates starting a fertilizer factory at Pensacola, Fla.

The American Illuminating Co., capital stock \$30,000, has been incorporated at Jacksonville, Fla., with S. B. Hubbard as president and A. D. Stevens secretary and treasurer. The company have purchased and will operate the electric light plant previously reported as erected by J. A. Cloud & Co.

It is reported that the Tropical Fibre Co., Sanford, Fla., contemplate erecting works for manufacturing paper.

The Tsala Apopka Canal Co. has recently been organized at Jacksonville, Fla., with George F. Drew as president.

J. H. Boden has received the contract to erect a three-story building, 50x95 feet, at Jacksonville, Fla., for E. Hudnall.

D. A. Boyd is erecting a saw mill at Palatka, Fla.

J. L. Maddox has started a brick yard four miles from Palatka, Fla., and will erect machinery with a daily capacity of 25,000 bricks.

## GEORGIA.

The Rome Ice Manufacturing Co., capital stock \$20,000, has been incorporated at Rome, Ga., by Rushton & Dixon, and W. J. Cameron and R. H. Pierson, of Birmingham, Ala., to operate the factory previously reported as erected by Rushton & Dixon.

The Southern Granite Co., capital stock \$100,000, has been incorporated at Atlanta, Ga., by W. B. Mills, S. H. Venable, George Moorlein, John Getz, Jr., and William Heffron, to quarry and manufacture granite. The quarry properties of the Stone Mountain Granite & Railway Co. and S. H. Venable & Co., in DeKalb county, have been bought by the company.

The charter of the Chattahoochee Brick Co., Atlanta, has been amended, giving the company the privilege to contract for the construction of railroads and to engage in mining.

McDonough & Co. are erecting a large lumber mill near Patterson, Ga.

The Young Men's Christian Association, Atlanta, Ga., have rejected all bids for erecting their building and are advertising for new ones. They will be received until June 19.

An addition will be built to Trinity Church, Atlanta, Ga., to cost about \$20,000.

The East Tennessee, Virginia & Georgia Railroad Co. will build a fine passenger depot at Macon, Ga.

There is talk of a company being formed at Macon, Ga., to build new water and gas works.

A basket factory has been started at Athens, Ga., by the Excelsior Basket Co.

J. W. Boyd will build a large brick warehouse at Griffin, Ga.

E. H. Woodward, previously reported as resuming the development of his manganese iron ore mine at Cartersville, Ga., has purchased the mineral interests on other property, which he will also develop. He will increase his daily output to 50 tons during the summer, and will erect machinery to wash the ore.

R. M. Brooks, Jenkinsville, Ga., is negotiating for machinery for his new foundry and machine shop, previously reported.

The Atlanta Marble Co., capital stock \$150,000, has been incorporated at Atlanta, Ga., by James P. Harrison, W. B. Miles, C. D. Horn, James S. Lawton and others to mine and manufacture marble.

The Quitman Mills, Quitman, Ga., have shut down to make repairs and put in new machinery.

A large brick warehouse will be built at Eatonton, Ga., by W. H. Hearn.

Mr. Teasley, S. C. Tate, J. A. Dewar and others have formed a stock company to open and develop marble quarries near Tate, Ga.

## KENTUCKY.

The Cumberland Presbyterian Church, Owensboro, Ky., will erect a new edifice at a cost of \$15,000.

James Hollan is moving his corn and flouring mill, saw mill and carding machinery to Enterprise, Ky.

Harrison county, Ky., will build a \$12,000 jail at Cynthiana, and a \$8,000 bridge at Robertson Station.

A saw and planing mill will soon be built at Dover, Ky.

The Mason & Foard Co. and D. Shanahan & Sons, Louisville, Ky., previously reported as having received the contract for the 140 mile extension of the Chesapeake & Ohio Railroad and the contract for the masonry for a bridge at Covington, have purchased two stone quarries in Lewis county, which they will extensively develop. They will also develop other quarries at different points.

The Robards & Kitchell Tobacco Manufacturing Co., Henderson, Ky., have enlarged their factory and put in new machinery.

## LOUISIANA.

P. H. Middlemiss will erect a \$8,200 building at New Orleans, La., for Alexander Smith.

The Plaquemine Logging Co. has been formed to erect works at Plaquemine, La., for pulling logs over the dyke, by the Burton Lumber Co., of Baton Rouge, and others.

## MARYLAND.

Dr. Rutledge is erecting a canning factory at Deer Creek, Md., and contemplates erecting a flour and grist mill next fall.

Charles A. Hollingsworth, W. S. Forwood, Jr., and Thomas G. Forwood have formed the Belair Chemical Co. at Belair, Md., to manufacture patent medicines.

P. W. Downes has recently added planing mill machinery to his saw mill near Denton, Md.

The Waring Fertilizer Co. are building a corn meal factory at Colora, Md.

John M. Biddle, Joseph Gatto, Claude M. Dougherty, Robert T. Tenley and Henry C. McCullough have incorporated at Baltimore, the Baltimore Manufacturing Co., capital stock \$3,000, to manufacture a scouring powder.

## MISSISSIPPI.

Alexander Kuhn, Vicksburg, Miss., will erect four large brick buildings.

Creameries are being started at Meridian and Verona, Miss.

A creamery is being started at Bolton's Depot, Miss., by Charles Williams and others.

A large cotton warehouse is to be erected at Kosciusko, Miss.

G. G. Sims and J. Scott are erecting the steam brick machinery at Greenville, Miss., reported last week.

Charles H. Mulholland, J. I. Mulholland and J. B. Bres, Jr., have incorporated at Vicksburg, Miss., the Vicksburg Spoke Co., capital stock \$50,000.

## NORTH CAROLINA.

J. M. Tiernan will erect a 10-stamp mill at the Holtshouser gold mine, near Salisbury, N. C.

It is stated that a stock company is being formed at Dobson, N. C., to erect a foundry and manufacturing plant.

Jenkins Blackwell has purchased the machinery for a distillery which he will erect five miles from Salisbury, N. C.

Mr. Townsend will develop a gold mine at Gold Hill, N. C.

A large brick tobacco warehouse is to be built at Kernersville, N. C.

John Evans Brown, Melvin E. Carter, Thomas I. Vangilder, Natt Atkinson, W. E. Bresee and others have incorporated at Asheville, N. C., the Asheville Gas & Light Co., capital stock \$40,000.

The mine of Frank Williams, Ashboro, N. C., will be developed by Northern parties.

A basket factory has been started in Duplin county, N. C., by T. B. Pierce.

Mr. Fenner, of Fredonia, N. Y., and E. P. Fenner and C. F. Moore, of Rochester, N. Y., will probably purchase the Hunnicutt Mine, near Gold Hill, N. C., and erect a stamp mill.

Zebulon Roles is erecting a wood-working machine shop at Raleigh, N. C.

## SOUTH CAROLINA.

T. D. Gillespie, W. D. Starling, John R. Abney and H. M. Pearson have organized a company at Columbia, S. C., to build a street railroad.

Messrs. Klough, Greenwood, S. C., will enlarge operations at their quarry.

The machinery of the water-works at Columbia, S. C., reported last week as wrecked by a flood, will be moved to another site and rebuilt.

Furson & Miller, Greenville, S. C., will erect a large three-story brick building.

The American Oil Co., of New York, have bought the oil mill of the Charleston Oil Manufacturing Co., Charleston, S. C.

George E. Hudgins is erecting a saw mill at Foreston, S. C.

R. R. Hudgins has added a corn mill to his saw mill at Foreston, S. C., and is preparing to erect a small rice mill.

The New York & Charleston Warehouse & Steam Navigation Co. will issue \$1,500,000 of bonds, for the purpose of providing additional terminal and steamship facilities at Charleston, S. C., for the South Carolina Railway Co.

## LOCKWOOD, GREENE & CO. MILL ENGINEERS

Office, 65 Westminster St., Providence, R. I.,

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.



## TENNESSEE.

A \$50,000 church building will be erected at Chattanooga, Tenn., by the Episcopalians.

It is reported that W. H. Searle, of Ohio, will start large works at Chattanooga, Tenn., for manufacturing bricks.

The iron foundry reported last week as to be erected at Spring City, Tenn., will be built by Burger & Varney.

S. H. Varney will erect the steam tannery reported last week as to be started at Spring City, Tenn.

Howard Ashton, of Ohio, reported last week as to move his milling establishment to Chattanooga, Tenn., has purchased a site for its location, it is reported.

The saw mill of Hotchkiss & Strong, Memphis, Tenn., reported in this issue as burned, will be rebuilt.

W. W. Cassety, J. K. McIlwain, S. O. Barnes, George Leamore and Robert Dyas have incorporated the Cassety Coal Oil Co., at Nashville, Tenn.

J. M. Henderson, A. C. Robeson, W. M. Nixon, J. J. Ivins and others are organizing a stock company at Athens, Tenn., to build a large woolen mill to cost about \$60,000.

The Ferguson Champion Mining Drill Co. has been incorporated at Chattanooga, Tenn.

Levi Wilson and J. R. Sparkman will erect a flouring mill at Dibrell, Tenn.

It is reported that a shoe factory has been erected at Kingston, Tenn., by Parson Fields.

A \$20,000 hotel will be erected at Winchester, Tenn., by Miller Bros. and T. A. Embrey.

## TEXAS.

Cullers & Henry, of Sherman, Texas, have bought an old mill building at Whitewright, and will put in new flour milling machinery.

S. Heidenheimer, Brenham, Texas, contemplates erecting an electric light plant at his oil mill.

The Fort Worth Printing House, Fort Worth, Texas, have put in machinery for a paper box factory.

The Calvert Water, Ice & Electric Light Co., capital stock \$50,000, has been incorporated at Calvert, Texas, by L. T. Fuller, L. H. Parish and H. B. Mistrot.

B. W. Beckham, Hearne, Texas, is erecting a gin and mill at Calvert, Texas.

J. M. Bassett is building the ice factory at Colorado, Texas, previously reported.

E. J. Teller and others are organizing a stock company at Henderson, Texas, to erect a wagon and carriage factory. The capital stock will probably be \$6,000.

## VIRGINIA.

The Craig Co., of New Castle, Craig county, Va., previously reported as organized to build a railroad, has increased its capital stock from \$50,000 to \$500,000. This company's charter also includes the right to engage in mining, iron making, &c.

The Richmond & Danville Railroad Co. will erect a new brick and granite freight depot at Richmond, Va.

The Thurmond Coal Co., capital stock \$100,000, has been incorporated at Staunton, Va., to mine coal and manufacture coke, by M. Erskine Miller, H. M. Bell, R. H. Catlett, R. P. Bell and H. M. Bell, Jr.

A. A. Lowe, A. Augustus Lowe and Edward A. Lowe, of Brooklyn, N. Y., and Jas. W. Eaton, H. M. Bell, M. Erskine Miller and R. H. Catlett, have incorporated at Staunton, Va., the Thurmond Land Co., capital stock \$100,000, to mine coal and manufacture coke.

Wright & Craighill, Lynchburg, Va., will rebuild their fertilizer factory reported last week as burned, loss \$15,000.

Ernest H. Chalkley is making improvements at his tannery at Lexington, Va.

The Piedmont Iron Works are building an iron foundry at Massie's Mills, Va.

The Virginia Hedge Co., capital stock \$100,000, has been organized at Roanoke, Va., with John C. Moomaw as president; S. F. Simmons, vice-president; D. B. Strouse, secretary and treasurer, and R. L. Garner, general manager.

W. F. Graves & Son, Liberty, Va., will refit their flour mill with roller process machinery.

## WEST VIRGINIA.

J. Bilby & Bro., Charleston, W. Va., have put a new boiler in their flour mill and made other improvements.

Ruffner Bros. will rebuild their hotel at Charleston, W. Va.

Thomas Williams is opening a gold mine in Roane county, W. Va., and will, it is said, erect a smelter and crusher.

New pumping machinery has been erected at the water-works, Wellsburgh, W. Va.

The Don Manufacturing Co. has been chartered at Wheeling, W. Va.

## BURNED.

The turpentine distillery of Jenkins & Williams, Lumberton, N. C.; loss \$1,500.

Mr. Foreman's saw mill in Stanly county, N. C., wrecked by a flood.

Congdon, Hazard & Co.'s turpentine distillery at Georgetown, S. C.; loss \$7,000.

The turpentine stills of E. J. Baker, near Jasper, Ga.

The iron foundry of J. E. Atwood, Claremont, Va.; loss \$4,500.

Charles Hammond's mattress factory at Claremont, Va.; loss \$1,000.

The corn and flour mill of Nancy Taylor, twelve miles from Greenville, S. C.; loss \$1,500.

C. Killinger's tannery, near Charleston, W. Va.; loss \$2,000.

The distillery of J. E. Pepper & Co., Lexington, Ky.; loss \$2,000.

Job & Co.'s distillery at Clementsville, Ky.; loss \$1,000.

The saw and grist mill of R. C. Gentry, five miles from Okolona, Ark.

Crigler & Crigler's distillery at Stamping Ground, Ky.

The large saw mill of Hotchkiss & Strong, Memphis, Tenn. Will be rebuilt.

The flouring mill of Middleton Long, on the Saluda river, thirty-five miles from Columbia, S. C., wrecked by a flood; loss \$6,000.

The saw mill of Will Shipps, near Brevard, N. C., wrecked by an explosion.

W. F. Wade & Bro.'s turpentine distillery near Wadeville, N. C.

## Will Rebuild Fertilizer Factory.

LYNCHBURG, VA., May 29, 1886.

*Editor Manufacturers' Record:*

It is our expectation to resume our fertilizer business as soon as we possibly can, consistently with the delays and annoyance attending the burning of our establishment.

WRIGHT & CRAIGHILL.

## Two Lumber Mills.

ATKINSON, GA., May 28, 1886.

*Editor Manufacturers' Record:*

Mr. Alex. Prentice has concluded the purchase of 40,000 acres of pine lands near this place, and is putting up a large mill at the 26-mile post of the Brunswick & Western Railroad. The mill will have a cutting capacity of 30,000 feet, and he expects it to be ready to saw in three weeks. McDonough & Co. are erecting a large mill on the S. F. & W. R. R. near Paterson, and I believe they will be ready to saw by August.

W. A. PRENTICE.

## The Thomas Iron Furnaces.

CATASAUQUA, PA., May 31, 1886.

*Editor Manufacturers' Record:*

We propose to build one furnace near Birmingham, Ala., at present, and lay out the work so as to build the second furnace at some future time. We propose to begin our operations in a conservative way, and cut the garment according to the cloth. We shall begin with making pig iron now, and let the future decide as to other manufactures of iron. Our capital stock will be one million.

SAML. THOMAS.

## A Steam Tannery and an Iron Foundry.

SPRING CITY, TENN., May 31, 1886.

*Editor Manufacturers' Record:*

The material is being received for a steam tannery by Mr. S. H. Varney, and the foundation is now building for a foundry by Messrs. Burger & Varney, all of this place.

M. S. HOLLOWAY.

BATON ROUGE, LA., May 29, 1886.

*Editor Manufacturers' Record:*

This company, with New Orleans and Plaquemine associates, will erect works to pull logs over the dyke at Plaquemine, La. The name of the company is the Plaquemine Logging Co. Work will commence Monday and be finished in 10 days, ready to transfer logs. This company have 2,000,000 feet in the bayou.

BURTON LUMBER CO.

## Wood-working Factory.

EUSTIS, FLA., May 31, 1886.

*Editor Manufacturers' Record:*

I shall start in a few days a small wood-working variety shop for mouldings, flooring, siding, turning and scroll sawing, and carpenter shop. Will use steam power.

JOHN ARMSTRONG.

## Handle and Spoke Factory.

HARTSELL, ALA., May 28, 1886.

*Editor Manufacturers' Record:*

I have the machinery here to establish a handle and spoke factory. I expect to go to work soon.

JOHN A. ROGERS.

## Enlarging Works.

HOPKINSVILLE, KY., May 28, 1886.

*Editor Manufacturers' Record:*

We are now building an addition to our works. We are a month behind our orders on our mill machinery, with yard and streets full of job work besides.

METCALF MANF. CO.

## Marble Company.

LOUDON, TENN., May 27, 1886.

*Editor Manufacturers' Record:*

The Loudon Marble Co. has commenced business with \$3,000 subscribed capital; the marble on 14 acres of land owned by the company, and a well-organized labor force and all necessary tools to carry on work. The quarry was opened on the 25th.

JOHN A. HOOD.

## Iron Ore Mines.

CHATTANOOGA, TENN., May 29, 1886.

*Editor Manufacturers' Record:*

Mr. James C. Warner and myself are building one mile of railroad and opening our iron ore mines, 14 miles south of this city, on the A. G. S. Ry.

J. P. BOND.

## Building a Foundry.

MASSIE'S MILLS, VA., June 1, 1886.

*Editor Manufacturers' Record:*

A foundry is being erected at this place under the name of Piedmont Iron Works, the proprietors of which are H. D. Coffey and L. N. Miller.

W. H. MILLER.

## Will Erect a 60-ton Furnace.

ROANOKE, VA., May 28, 1886.

*Editor Manufacturers' Record:*

The committee appointed by the Roanoke Zinc & Silver Mining Co. are engaged in testing one or more furnaces in and near Cincinnati, O., with a view to purchasing a 60-ton furnace to treat our ore. Recent developments have proved that we have immense beds of rich ore, and the company is moving as rapidly as they can under the circumstances to put the business in practicable shape to treat our ores successfully with our own furnace, either in this city or at their mines, three miles off.

G. A. TURNER.

## Big Lumber Mill.

ORANGE, TEX., May 24, 1886.

*Editor Manufacturers' Record:*

We are rebuilding our mill, which will be with lower frame extension of 36 feet in length, 40 feet by 216 feet, 2 stories. We intend using our present machinery now in use, adding steam rope feed, gang edger, trimmer, &c., also large engine. Capacity to be 35 to 40 M feet lumber or 100 M shingles per day—of 11 hours.

T. BANCROFT & SONS.

SALISBURY, N. C., May 29, 1886.

*Editor Manufacturers' Record:*

There is a proposition to form a company to operate Ore Hill on an extensive scale. Parties in charge of this are sanguine of success.

S. H. WILEY.

## Sash, Blind &amp; Door Factory Rebuilt.

ATHENS, GA., May 28, 1886.

*Editor Manufacturers' Record:*

I have about completed rebuilding my sash, blind & door factory, which was destroyed by fire on the 16th of last December, and have somewhat enlarged and built more substantially, and have more machinery up and of better quality than before; my engine and boiler are larger.

M. B. MCGINTY.

## Will Build New Gas Works.

TALLADEGA, ALA., May 29, 1886.

*Editor Manufacturers' Record:*

Our water works will be completed about July 1, and the gas company has been absorbed and the company is now the Talladega Gas, Light & Water Co. We will treble the capacity of the gas works this summer, in fact, build new works. We have not decided yet as to system.

GEO. P. ANDERTON.

TALLADEGA GAS, LIGHT & WATER CO.

## Flour Mill.

WILLS POINT, TEX., May 27, 1886.

*Editor Manufacturers' Record:*

The Alliance Mill, Herman & Reynolds, proprietors, will be in operation by July 1.

J. G. HERMAN.

## Foundry and Machine Company.

ORLANDO, FLA., May 27, 1886.

*Editor Manufacturers' Record:*

The Southern Florida Foundry & Machine Co. has been organized with a capital stock of \$10,000, and are now erecting buildings, viz: Foundry, 35x60; machine shop and offices, 25x74, with engine room attached; pattern shop, 16x47. Capacity of foundry will be about 2½ tons per heat of 1½ hours. Will do general foundry and machine business, making a specialty of building castings and repair work. Will deal in all kinds of machinery, oils and general mill supplies. The old plant of P. W. Lowmes is acquired by the new company.

P. W. LOWMES.

[FOR OTHER LETTERS SEE PAGE 589.]

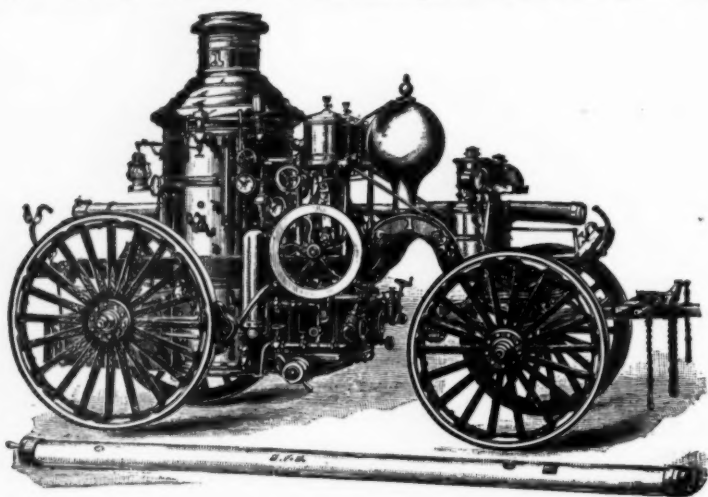
### Fire Apparatus.

The two engravings shown herewith represent the fire engine and extension ladder truck made by the La France Fire Engine Co., manufacturers of fire department supplies, Elmira, N. Y.

In this improved piston steam fire engine, the manufacturers claim to have overcome the defects heretofore existing in this style of engine.

They have abandoned the drop tube and smoke flue boilers, which are liable to become clogged with scale or mud, and use the La France Patent Boiler, of which over 100 are in successful operation, giving, it is said, perfect satisfaction, and proving to be almost

The force pump for boiler is very simple in its construction, the check valves being of standard sizes, which can be found at any plumbing establishment; are all coupled up with unions, so that they can be easily removed and replaced by new ones, if necessary. The water is fed into the boiler under the fire box door. This system prevents the collecting of scale or mud under the door ring, and also prevents the nuisance of a leaky fire box door. The grate is of an improved form, having a ring cast on its periphery extending above the rivets around the bottom of the boiler, and preventing them from becoming overheated and thus leaking. The new arrangement for oiling the engine makes an oil can almost unneces-



LA FRANCE FIRE ENGINE.

entirely self-cleaning, as well as a very strong and quick steaming fire engine boiler.

They do not bolt the steam and water cylinders to the boiler, thus doing away with the differential expansion between boiler pump and engine.

The steam pipes are connected outside of the boiler, doing away with a great deal of trouble and loss of time in taking off boiler heads in case of leaky steam pipes. The steam pipes are short and closely connected between boiler and steam cylinders, thus preventing condensation, and, in case of leakage, are easily and quickly repacked, with no possible chance of the engine being out of duty, as it will not take above five minutes to replace the packing in a leaky steam pipe.

They have done away with slides and link boxes, which piston engines have used to drive their crank-shafts, eccentrics and balance wheels, and in their place have put a neat mechanical movement, running quietly and noiselessly and almost without friction. In case of long lines of hose, where high water pressures are needed, it will not be necessary to shut the engine down on account of heating of slides and link blocks. The engine can be run to its utmost capacity without annoyance from this source.

The packing in the pump barrels is so constructed that if the leather cups give way, the pump will not be disabled; the engine, instead of being withdrawn from service, may work until the fire is extinguished, and the defective part may be replaced at convenience.

The arrangement of the pump valves is such as to enable the driving of the pump pistons at a high rate of speed, and thus meet the demand when an increase of water is required without recourse to a larger engine. The pressure valves are accessible by means of a hand-hole plate, and can be taken out and replaced in ten minutes. The water box to pump is arranged in such a manner as to catch small stone or gravel and prevent their getting into the valves and hindering the pump from doing its work.

The steam and water cylinders are bolted to bed-plates fastened to the frame, and any ordinary engineer can take them off and replace them without getting them out of line, and the pumps and engines will come to their centers without trouble or loss of time.

sary, the oiling being done from a reservoir fastened to the steam cylinders, and the oil fed into the proper oil holes by stop-cocks. The steam cylinders always keep the oil ready for use in cold weather. The entire engine is controlled from the engineer's side, making it unnecessary for him to be out of reach of his throttle valve in case of accident.

Detailed description of the boiler and other parts may be had from the manufacturers.

In the extension ladder truck and fire escape the ladder is telescopic, giving a total length of from 60 to 85 feet from the ground, made in two slides, and worked by an endless chain and winch attached to the lower



HAYES EXTENSION LADDER.

portion. The lower portion is hung on trunnions supported on an A frame, which stands on a turn-table which is attached to the main frame of the truck.

From the under side of the ladder is hung a pair of arms which carry a nut which is hung on trunnions, and through which passes a screw, one end of which is held in a swivel which is fastened to the revolving portion of the turn-table on the front end.

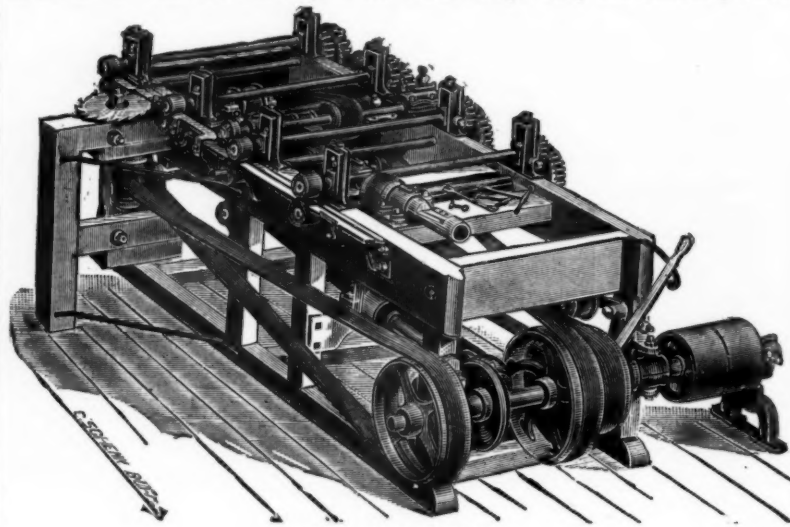
The back end extends under the ladder, and the front end is squared for a crank, so that by turning the screw the ladder is raised to the required elevation; then the turn-table is swung around, and, if necessary, the

extension of the ladder is run out, and the ladder is lowered over against the building, as may be desired.

As the ladders are being raised to a vertical position, they can, by means of the turn-table, be turned in any direction required, and by simply manipulating the turn-table, screw and extension cranks, the top of the ladder can be readily directed to any desired point within reach. The truck can also be moved from point to point without letting down the ladders, thus enabling the firemen to reach every point of a burning building. With a little practice this can be done with precision and great rapidity. In less than one minute the ladders can be fully extended and placed against a building ready for service. In raising the ladders electrical wires can often be avoided, but if encountered a man can ascend the ladder at any angle and cut them.

The ladders being raised by means of a powerful screw, the action is claimed to be certain and perfectly safe. Only 8 or 10 feet width of roadway is required for the truck, and it can be operated as well in a narrow alley as in a wide street. But five or six men are required to work it.

A rope is provided for handling the hose. To one end is attached a hook. The rope is passed over the ladders through a sheave attached to the top end of the extension ladder; thence it passes down under the ladders and through a snatch block provided on the frame. The end of this rope is left



BARREL HOOP MACHINE.

slack when the ladders are being raised. When they are in position the hose is hooked on and readily raised to the top, where it can be securely strapped to the ladders. The rope can also be made useful in saving lives and property.

As an aerial ladder this truck can be used with perfect safety to the height of the main ladder, which is about 50 feet in the first class, and 40 feet in the second class, from the ground. The ladder is placed in a nearly vertical position, and two lines of hose carried to the top may be directed by the firemen in any direction, carrying a full fire-pressure stream.

### Barrel Hoop Machine.

The I. E. Merritt Manufacturing Co., Lockport, N. Y., manufacture a very efficient barrel hoop machine, an illustration of which is shown on this page. This machine is for making sawed hoops. It points, planes and laps two hoops at once. The lumber is sawed in pieces the proper width and thickness for two hoops. One end of each piece is then pointed by the revolving cutter or chuck, and placed between the feed rollers, which carry it between the two shaper heads, which finish the outside of the two hoops, which are separated by a saw set at the correct angle to give to them the proper bevel. The hoops then reach the lapper, which bevels the ends for the lap, which completes the hoops ready for the coiler. The feed rolls are driven by a train of cut gear, speeded to feed through 80 lineal feet per minute.

### Improvements at Anniston.

Reports from Anniston indicate that the outlook there is very favorable for a decided improvement in business and for the early establishment of a number of important enterprises. The Hot Blast of that city, in its last issue gives the following relating to the condition of the industries of Anniston:

Murray & Stevenson are busy putting in new machinery in their machine shop.

The cotton factory is running on full time. Every spindle and loom is pushed to its utmost capacity to fill orders, partly for export trade to China.

It is said the entire capital of \$40,000, to erect a new 80-inch Morse compress, has been subscribed. As Anniston never builds anything in a half-way manner, we may expect to have one of the best and most complete compresses in the South. It will be put up ready for the fall business.

The contract for the new seminary for young ladies has been awarded to Mr. J. C. Allen, the superintendent of construction of the Anniston Inn, and is to be finished by October 10th. The building, judging by the plans we have seen, will be a beautiful and imposing structure, and add another to Anniston's splendid buildings.

Noble Bros' rolling mill, steam forge and wheel works are very busy, and are receiving large orders for wheels and axles. The car axles are of splendid quality, being made of select wrought scrap and charcoal puddled

iron. When the large hammer now being erected is started, the forge will turn out over one hundred car axles daily.

Miller & Smith, we understand, have been awarded the contract for the new colored Congregational church and school. The plans show it will be a large and beautiful building, and will, from the beautiful situation it commands, present a most attractive appearance. Other important buildings are under construction and in contemplation that will make our building season quite active.

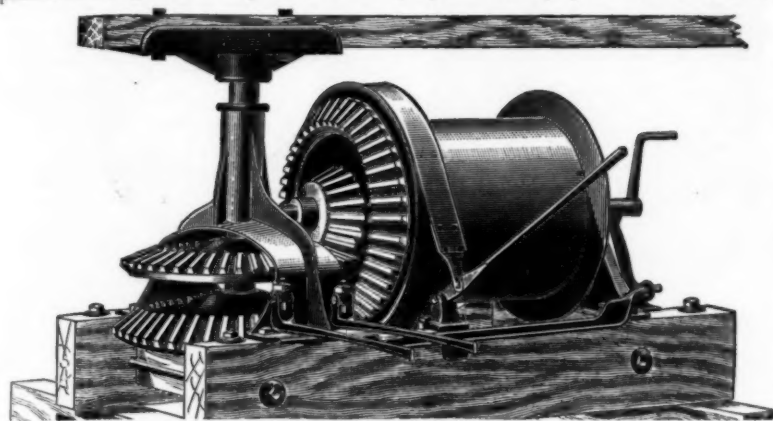
The new Clifton furnace at Ironaton produced last week 290 tons. The furnace is making purely a chilled car wheel iron. This furnace, and the one at Jenifer, is another great industry tributary to Anniston, and in which her citizens have and feel a great interest. The ores at Ironaton produce iron of extraordinary strength and chilling properties for car wheels.

The two Woodstock furnaces produced last week over five hundred and twenty-three tons of iron. No. 2 furnace, in charge of Mr. McKeever, made 283 tons, almost beating her former record. The smooth and efficient working of the furnaces have never been excelled—the quality of iron produced was never better. The furnaces are rapidly accumulating stocks of charcoal and iron ore that were much reduced during the winter. With the change of gauge completed, Mr. Mitchell will resume his heavy shipments of iron.



### Hoisting Machine.

The above engraving represents an improved horse-power hoisting machine made by the Contractors' Plant Manufacturing Co., Buffalo, N. Y. This machine has a combination of fast and slow speed. With the fast speed a horse will lift 1,600 to 2,000 pounds on a single line at a speed of 60 feet



HOISTING MACHINE.

per minute, and with a single block 3,500 pounds 40 feet per minute. With the slow speed a weight of 1½ tons with a single line, and with a single block 3 tons; with two single blocks 5 tons; with double and single blocks 7 tons. The speed, single line, 30 feet per minute; with single block 15 feet per minute.

In this combination of gears the user has the advantage of two machines embraced in one, saving both in cost and weight.

The machine is so simple in its construction that it can be easily understood without explanation. The changing of the speed is done in an instant by simply raising or lowering a lever to the left of the machine without being obliged to stop the horse. The machine is provided with a safety attachment which is operated automatically with the lever which throws the power out or in gear, so that when a weight is suspended the drum is held in position by the iron dog which works in ratchet on end of drum, thus preventing accident in case of breaking any of the parts. It has also a powerful brake to lower when required.

Information in regard to this or any other hoisting machinery, derricks, contractors' supplies, &c., may be obtained from the Contractors' Plant Manufacturing Co., Buffalo, N. Y.

### Basing Wages on a Sliding Scale of Prices for Product.

In an article contributed to the new monthly magazine, the Forum, Mr. Andrew Carnegie, of Pittsburgh, says the most feasible methods of maintaining a good understanding between employers and employees are: 1. To base wages on a sliding scale in proportion to prices received for product. 2. The organization of the men of an establishment, so that they may readily appoint representatives to confer with employers on points where there is, or seems to be, a misunderstanding. 3. Peaceful arbitration of all difficulties which cannot be settled by conference of the parties concerned. 4. The progress of work pending a decision; no interruption on account of difference. Mr. Carnegie says in his article: "I gladly pay Mr. Potter, president of the North Chicago Rolling Mill, the great compliment to say that he has already taken a step in this direction, for to-day he is working his principal mill upon this plan. The result is that he has had no stoppage whatever this year, nor any dissatisfaction."

Mr. Potter was called on with reference to this statement. He said the plan outlined by Mr. Carnegie in the Forum had been in operation now two years at the South Chicago mills of his company and one year at the North Chicago mills. It had given complete satisfaction. The men were satis-

fied, and so were the stockholders and officers of the company. The principle of arbitration in its application to labor disputes was new, but the sliding scale plan of wages, based on net prices of product, had been countenanced by the officers of the company for many years. There was a contract existing between the rolling mill company and its employees in virtue of which

the workmen are paid wages according to the average price received for product per month. In order to determine what that price is, a committee, appointed by the workmen from their own number, is permitted to inspect the books, orders and letters of the company. The price to be paid to the workmen is proportioned to the average

price received. To illustrate, suppose the company sells this month:

|   |
|---|
| 2,000 tons of steel rails at \$25 per ton.  |
| 5,000 tons of steel rails at \$30 per ton.  |
| 10,000 tons of steel rails at \$32 per ton. |
| 8,000 tons of steel rails at \$35 per ton.  |

The average price will be \$32 per ton, calculated according to the plan for equation of payments, and on this average are based the wages of the workmen according to the scale determined on. The workmen, if they are dissatisfied with the way the arrangement is carried out, can, if they agree with the company's officers in conference, demand an arbitration. The representatives of the men can name one arbitrator, the employers another, and these two select a third. The finding of the three is binding on both parties to the dispute. There is no stoppage of work. The decision takes effect from the date of reference to the committee. The agreement under which this plan is carried out cannot be terminated without a year's notice. To terminate it abruptly would do injustice to both parties. The company makes its contracts often more than a year ahead of their being filled, and on the basis of the existing agreement and the scale of prices, which forms a part of it. The long time of notice is therefore necessary. Mr. Potter says that the plan as outlined has done away with all feeling of dissatisfaction on the part of the men, and with that sense of uneasiness which employers experience when their employees are restive.—Chicago Tribune.

### Dry Air Refrigerators.

The Ross Patent Refrigerator Co., Buffalo, N. Y., manufacture a dry air refrigerator which is becoming very popular. It is made in several styles, two of which are shown in the annexed engravings. The manufacturers make the following claims for it:

It is perfectly dry in the provision chamber, and guaranteed as such. The value of such an achievement is well understood by marketmen, housekeepers, and all having occasion to use refrigerators. The patents cover a continual circulation of air passing down through cold air ducts, displacing the warmer strata of air in the provision chamber, and forcing them up through warm air flues into the ice chamber, where they again come into contact with the ice and condense their moisture thereon before descending into the provision chamber. This circulation will continue as long as ice is kept therein.

A series of dead air spaces is constructed within the walls, with inodorous, waterproof, canebrake felt, prepared for the special purpose. These prevent the cold and warm air from coming in contact, and thereby prevent condensation and moisture. The inside lining is of the very best white ash throughout, tongued and grooved together, making it perfectly air-tight.

The ice chamber is constructed in such a way as to keep the ice from coming in contact with the metal lining.

There is an automatic ventilator on the right



FIG. 1.

outer side, under the cornice, for the purpose of expelling obnoxious gases that may arise from vegetable or animal matter within. The simple operation of opening and shutting the door will thus supply the provision chamber with fresh, pure air.

The frame work is very substantially put together; constructed of posts an inch and three-quarters square, to allow for the formation of dead air spaces in the walls.

MR. A. POPE, general freight agent of the Norfolk & Western Railroad Co., has issued circular No. 203 H, giving advice to shippers and receivers of freight of reductions in freight classifications, as follows:

"Attention is respectfully invited to the fact that commencing with this date—the classification to be used on freight between Eastern cities and all stations of the Norfolk & Western Railroad will be that known as the Southern Railway & Steamship Association classification, which is in general use upon all Southern railway lines, either connections of or competitors with this road. Important reductions have been also made in the local classification of the road in staple articles of trade, such as coffee, sugar, merchantable iron, molasses, syrups, soap, confectionery, lard, bacon, domestic liquors, whiskey, &c. Copies of these classifications, or information of these reductions,

can be obtained of our local agents, and I trust that their effect will be mutually beneficial to your trade and our revenue."

### Driving Out Pittsburgh Coal.

Mr. J. K. Ryan, the general superintendent of the Virginia & Alabama Mining & Manufacturing Co., of Patton, Ala., in extending an invitation to our Birmingham correspondent to visit their mines, writes:

"Here he will find a better field than he can around Birmingham, a superior coal, and output and sales increasing rapidly. Our stockholders are the controlling parties in the Memphis, Birmingham & Atlantic Railroad now in course of construction, and which will pass through our property here, as well as a tract we own between the Warrior river. This road will place us in a position to take from Pittsburgh her river trade from Memphis down; it is this coal which is taking the trade in New Orleans and which resembles Pittsburgh coal very much—it is almost identical to the splint coal of West Virginia. We are shipping now, during a dull month, only about 300 tons per day, but our capacity this fall will be about 800 tons per day. There are several mines opened in this neighborhood, but all are working under lease but this one. In your efforts to show the growth and resources of the South I would be very glad to have your correspondent see this place and the surrounding country, its great advantages, &c., that he may have a still more enthusiastic opinion of the great future of this country."

### A Bull Movement.

The St. Louis Globe-Democrat has unearthed a scheme that is said to have its origin in that city, an inkling of which may be of some interest to the farmers' alliances of Texas. The plan is "to make up a pool to buy a lot of cotton options on the next crop at present prices; then pick out a few smart men among the Knights of Labor, send them down through the cotton States to organize the negroes. It wouldn't take more than a month to do this under good management. At a critical time in the growth of the plant, when it needs most attention, and will die if not cultivated, order a general strike, get all the negroes to quit work for two weeks or a month, and what's left of the crop won't be worth gathering. Cotton would go from nine cents a pound to twelve or fifteen cents a pound before the end of the strike," and the promoters of this pretty scheme would of course get rich.

It is as easy to get up a strike among the negro cotton-field hands as to make the workmen on the Texas & Pacific and the Missouri Pacific Railroads quit work and stay out for two months. All that is neces-



FIG. 2.

sary is preliminary organization, in order to get concert of action among the field-hands. The farmers would have to submit to whatever demands were made, or see their crops go to ruin for want of cultivation. They are in no condition to resist a strike. A



manufacturer or a railroad can close down and let things run along until the men are ready to go to work or listen to reason; but the growing crops must be taken care of, and if they are not given the attention they deserve the loss cannot be remedied.

This is a pretty interesting subject for reflection among those cotton-raisers who, as members of the alliance, have encouraged strikes elsewhere. If they find themselves "hoist by their own petard" they will not receive much sympathy in the hour of affliction.—Forth Worth Gazette.

## MINING NOTES.

By T. K. BRUNER, Salisbury, N. C.

### MINERAL WEALTH OF RANDOLPH.

Randolph county has a large number of mines, and a much larger number of available prospects. There, as in many other sections of the State, a large number of valuable ore bodies have been found, but owing to the impecuniosity and oft times obscurity of the owner or discoverer, nothing comes of the find. Occasionally a practical man runs across one of these localities and goes to work, frequently developing a really valuable property.

The great majority of the Randolph gold mines are in the prevailing Huronian formation or the accompanying clay slates, but there are a few placer mines and several copper bearing properties in the county. The most famous mine in the county is known as the "New Hoover Hill Gold Mining & Milling Co., Limited." It has been in existence for many years, but has not been productive since its discovery, when the surface ores were remarkably rich, until the last two years, when, under the efficient management of Superintendent Wm. Freshville, it has again proved remunerative. He says: "7,635 tons of ore were crushed in 1885, producing \$68,400. \* \* For the year ending September 30th, 1885, a profit was made of £6,698.62, of which £6,000 was distributed in dividends." The mine is equipped in the best manner; has a 20-stamp mill and employs between 75 and 100 men constantly.

The old Keystone, now the Jones, is about next in importance in Randolph. Prof. Hanna says of this mine: "The entire country is a soft and rather silicious-talco schist, with a chlorotic tendency. The Weathering, to the depth of forty feet, and possibly more, has effected a peroxidization of the ferruginous constituents, so that it has become a mass of reddish clay. At the same time the disintegration has proceeded so far that the mass can be readily picked to pieces. The more deeply colored earth is generally the richer, but gold is usually present over the whole country." There are several mines of this character in the county. The Jones has a ten-stamp mill. Other mines in Randolph are the—

Scarlet Mine—gold and copper.  
Hamlin Mine—gold.  
Gray Mine—gold.  
Newberry Mine—gold.  
Poplar Branch Mine—gold.  
Winslow Mine—gold.  
Davis Mountain Mine—gold (south end).  
Davis Mountain Mine—gold (north end).  
Branson Mine—gold.  
Spoon Mine—gold.  
Johnson Mine—gold.  
Free Mine—gold placer.  
Elliott Branch Mine—gold placer.  
Mendenhall Mine—gold.  
Finch Mine—gold.  
Delk Mine—gold.  
Tomlinson Mine—gold.  
Frazier Mine—gold.  
Leach Mine—gold.  
Wilson Kindley Mine—gold.  
Uwharrie Mine—gold.  
Herring Mine—gold.  
Delf Mine—gold.

Winningham Mine—gold.  
Sawyer Mine—gold.  
Slack Mine—gold.  
Graves Mine—gold.  
Copper Mine—copper.  
Stalker Mine—gold and copper.

And the York, Kinly, Honey, Lowe, English and a great many others of less note. There is considerable interest in the county just now.

### GENERAL BRIEFS.

—Prof. W. E. Hidden has resumed operations in Alexander county—the famous gem region of North Carolina.

—Mr. W. B. Lewis, of London, Eng., president of the Gold Hill Mining Co., Limited, is on a visit to the mines.

—Operations at Dumis Mountain Mines are to be resumed this month under the superintendent, Jas. McCandless.

—The property known as the Sittion Mine, in Henderson county, has an immense ore body of quartz, which is said to be both auriferous and argentiferous.

—The latest information from the Carolina Queen, in Burke county, is that flattering prospects have been discovered. The Queen is a placer deposit.

—A recent discovery near Warm Springs, in Madison county, has brought to light a large lode of complex ore, carrying copper and nickel, the latter predominating. The ore body is said to be very large.

### Two \$100,000 Coal Companies.

STAUNTON, VA., May 29, 1886.

*Editor Manufacturers' Record:*

The Thurmond Land Co. has been organized with Mr. A. A. Low, 31 Burling Slip, New York, as president, and one of the incorporators with myself and others, and the Thurmond Coal Co., myself president, with H. M. Bell, H. M. Bell, Jr., and R. H. Catlett incorporators. M. ERSKINE MILLER.

### Planing Mill.

CORRIGAN, TEX., May 27, 1886.

*Editor Manufacturers' Record:*

The report in regard to our erecting a planing mill is correct. KURTH & CO.

### Spoke & Handle Factory.

BARTOW, GA., May 31, 1886.

*Editor Manufacturers' Record:*

We have started a spoke and handle factory in this place, and are builders of buggies, wagons, &c. LAIDLER & CO.

### Basket and Fence Factory.

ATHENS, GA., May 31, 1886.

*Editor Manufacturers' Record:*

The Excelsior Basket Co. have erected works for the manufacture of the celebrated Excelsior patent basket at Athens, Ga. Their capacity will be from 3,000 to 5,000 complete baskets daily. Messrs. Hunnicutt & Yancey will run, in connection with above, the manufacture of patent wire and picket fence, under the name of The Athens Fence Company. Mr. M. B. McGinty has just completed his large planing mills and work shops at Athens, Ga.

HUNNICUTT & YANCEY.

### Augusta, St. Mary's & Jacksonville Railroad.

FERNANDINA, FLA., May 29, 1886.

*Editor Manufacturers' Record:*

The road commonly known as the Millen road, via St. Mary's, Ga., to Jacksonville, Fla., is progressing rapidly. The terminal points will be Augusta, Ga., and Jacksonville, Fla. It will open up a fine country and make many towns, and a flourishing city of St. Mary's, Ga., and help Fernandina. J. M. A.

### FOR SALE.

One 50-ton Zero Ice Machine at half-price.  
Correspondence Solicited.  
R. P. GERLACH, Box 110, Cleveland, Ohio.



HEINZ & MUNSCHAUER,

MANUFACTURERS OF

JAPANNED AND BRASS

Bird Cages, Refrigerators,

Water Coolers, and Filters and Coolers,

Coal Hods, Coal Vases & Children's Sleighs

Cor. Superior and Randall Sts.,

BUFFALO, - - - N. Y.

Send for Illustrated Catalogue.

### \$250 WILL BUY



THE BEST  
SAW MILL  
Yet offered for the money.

SEND FOR CIRCULAR.  
RICHMOND MACHINE WORKS,  
RICHMOND, INDIANA.

ESTABLISHED 1860.

KREHL, HAUSER & CO.

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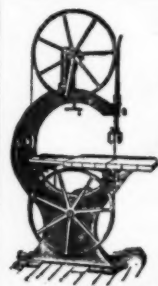
OAK Leather.

ALSO MANUFACTURERS OF

Leather Belting,

Girard, Trumbull Co., Ohio.

SPECIALTIES—Harness, Black and Fair Bridles, Line Leather, Saddle and Shoe Skirting, Russett and Stained Rein Welt, Fly-Net and Collar Leather. Superior Harness Backs. Write for prices. Mention this Paper.



### WOOD WORKING MACHINERY

For Cabinet, Chair, Carriage, Wagon, Carpenter, Millwright and Job Shops and Factories.

GOOD WORK & LOW PRICES.

Before Purchasing Machinery write to

F. H. CLEMENT,

215 Milk St., ROCHESTER, N. Y.

Mention "Manufacturers' Record."



Sweet's Patent Measuring Machine.



Measuring Screw 10, 16 or 20 Threads to the inch, graduated to read thousandths or 32ds without calculation.

IT WILL PAY YOU TO USE THIS MACHINE Upon COMMON WORK for the TIME it will save. Upon FINE WORK for the ACCURACY it will secure. It is the only Micrometer that will not lose its accuracy by use.

We will send one of these machines to reliable parties on trial. Those who use it would not be without one for many times its cost. Address, SYRACUSE TWIST DRILL CO., Syracuse, N. Y.

### DON'T BUY AN ENGINE OR BOILER

Until you have seen our circulars. Engines complete from

\$250 for 15 Horse Power to \$550 for 60

Boilers of every style. Automatic Engines for Electric Lights. Centrifugal Pumping Machinery for Drainage or Irrigation. Established 22 years. Perfect satisfaction guaranteed. Address for circulars, MORRIS MACHINE WORKS, Baldwinsville, N. Y.

### IMPORTANT!

STANDARD WATCHMAN'S CLOCK  
20 PRIZE MEDALS AWARDED  
FOR 12 STATIONS COMPLETE PRICE \$50.00  
THE BEST IN THE MARKET  
IF NOT SATISFACTORY RETURN GOODS AT MY EXPENSE  
SEND FOR CIRCULAR O. E. HAUSBURG  
71 NASSAU ST. N.Y.



TOOLS for Machinists, Amateurs, Jewellers, Model Makers, Blacksmiths, Carpenters, Coachmakers, etc. Send 20 cts. for new Metal Worker's Catalogue, 300 Pages. Wood Worker's Catalogue free. TALLMAN & McFADDEN, Philadelphia, Pa.

### Derby Roll Top and Flat Top Desks

The BEST and CONSEQUENTLY the CHEAPEST OFFICE DESK IN THE WORLD.

Derby & Kilmer Desk Co.,

Manufacturers.

OFFICE AND WAREHOUSES:

55 to 65 Charlestown St., BOSTON, MASS.

Illustrated Catalogue on Application





**Location for Mill Wanted.**

WAVERLY STATION, VA., May 31, 1886.  
*Editor Manufacturers' Record:*  
 We contemplate removing our mill to North Carolina, but have not decided yet as to where we will locate. We are receiving letters from there, and will select a point most suitable for our business.

MORTON BROS.

**Capacity Enlarged.**

HENDERSON, KY., May 29, 1886.  
*Editor Manufacturers' Record:*  
 We have added a new engine and boiler, 25 and 30-horse-power respectively, in place of 5-horse-power last season. We have put in new drying apparatus, added a new building, two-story, 20x24 feet, and so arranged our business as to increase our capacity about 50 per cent.

THE ROBARDS & KITCHELL  
 TOBACCO MANFG. CO.

**Saw Mill.**

FORESTON, S. C., May 31, 1886.  
*Editor Manufacturers' Record:*  
 George E. Hudgins is erecting a fine saw mill at this place. The machinery has arrived, and was furnished by the Tanner & Delaney Co., of Richmond, Va. R. R. Hudgins has attached a fine corn mill to his saw mill here, and is preparing to put up a small rice mill this summer. Other improvements are spoken of.

J. J. BRAGDON.

SUMTERVILLE, FLA., May 28, 1886.  
*Editor Manufacturers' Record:*  
 I have started lime works near this place on a small scale. Will enlarge my business soon. The lime is burnt from rock that is soft.

G. D. HORTON.

## Splendid Tobacco Farm FOR SALE IN NORTH CAROLINA.

Sixty acres of fine tobacco land with splendid two story house and beautiful yard, fronting about 350 feet on the main street, in a town of 150 to 175 population, 15 miles from a city of 15,000 inhabitants and one of 5,000. The house is 300 yards from depot. There is a large stable, carriage house, corn crib and other out-houses, including 3 tobacco barns and 2 tenant houses. Good well of freestone water; 400 peach and apple trees, and 425 grape vines, all in full bearing. Splendid climate; healthy location. The buildings alone cost \$3,500. Will take \$2,500 cash. Special reasons for selling. Address J. P. R., care MANUFACTURERS' RECORD.

**For Sale, Cheap.**

4,000 ft. 3 in. & 52 ft. 6 in. Gas Pipe.  
 Has been used only 6 months for conducting water. Will be sold in any quantity.

Geo. H. Cornelson,  
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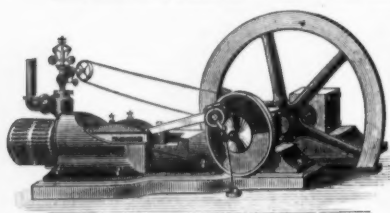
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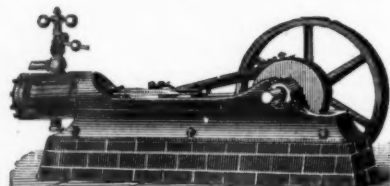
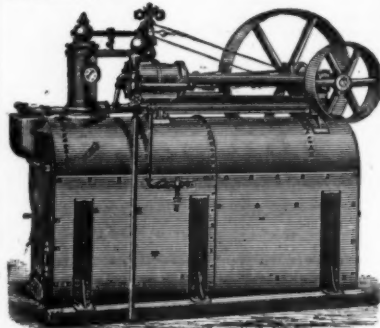
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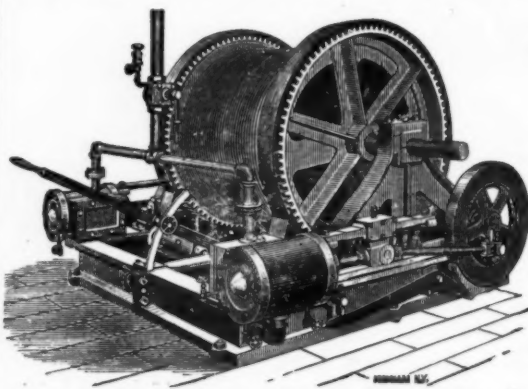
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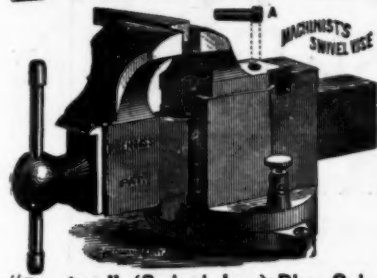
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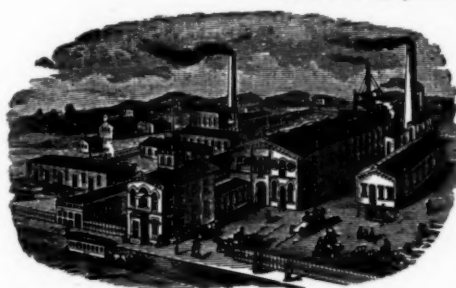
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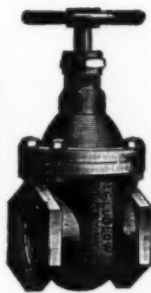
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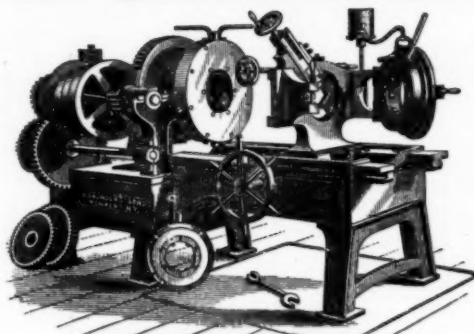


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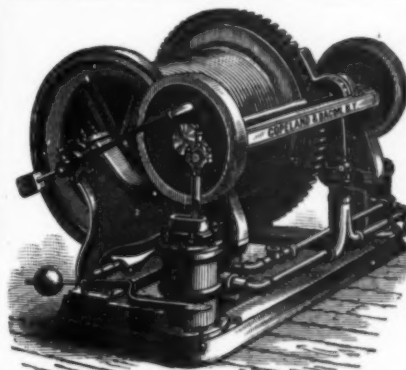
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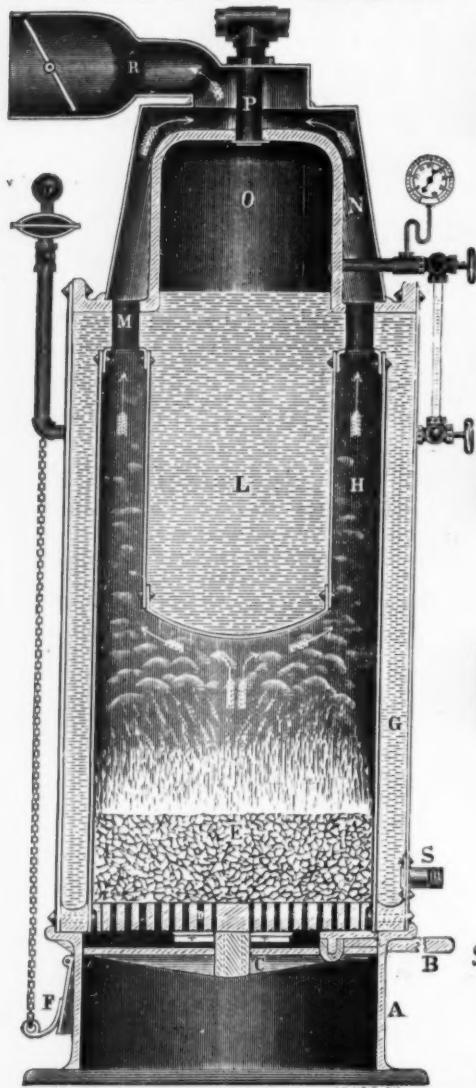
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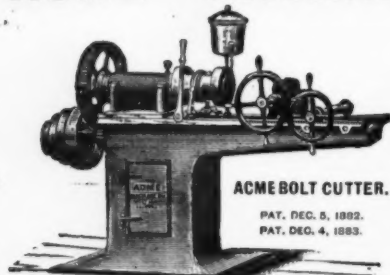
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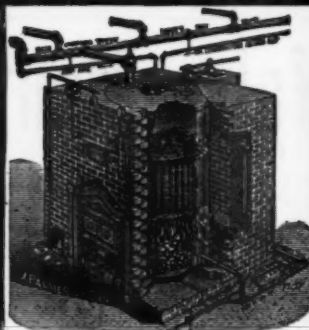
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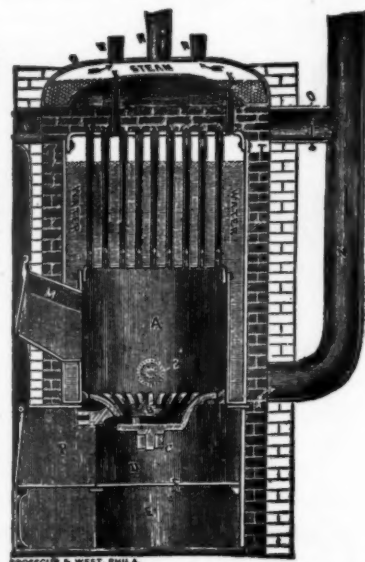
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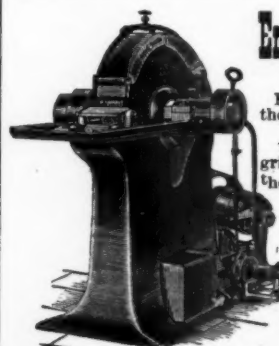


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THESE ENGINES CANNOT BE SURPASSED FOR

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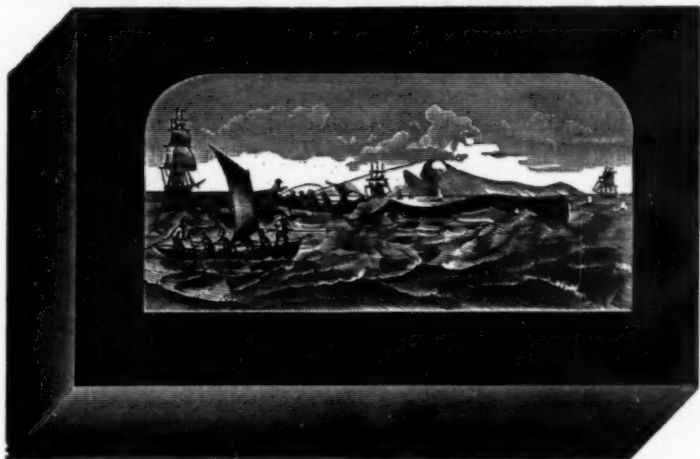
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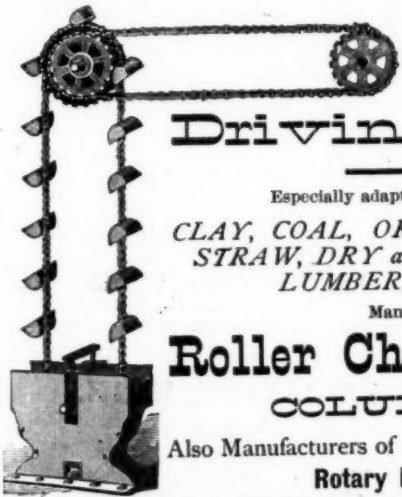
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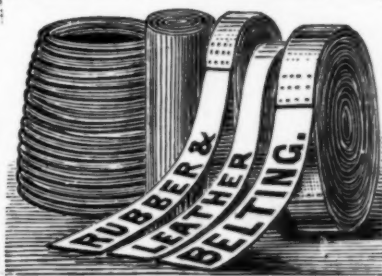
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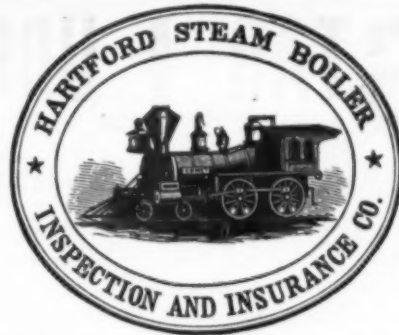
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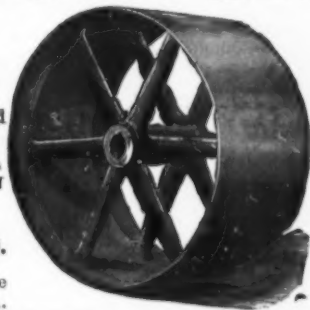
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## Literary Notes.

**HOUSEHOLD REMEDIES.** For the Prevalent Disorders of the Human Organism, by Felix Oswald, M. D. 12 mo., pp. 229. Price \$1.00. Fowler & Wells Co., New York.

Felix Oswald, M. D., on the title page of a book is a guarantee of careful, logical, vigorous, interesting and valuable authorship. More than that, his books have a purpose, and that purpose is always pure and high. Dr. Oswald possesses a rare and harmonious combination of genuine literary ability, professional culture, classical attainment and fondness for research, as well as a wide experience of men and the things which effect their well being.

The entire book is like draughts of pure, frosty morning air, after a night in a close, super-heated sick room under the surveillance of an old-fashioned nurse. The causes of prevailing ailments, the diagnosis of each and the natural remedies by which a high-way of escape from chronic invalidism is opened up are admirably presented and arranged.

The author is an enthusiastic apostle of the gospel of hygiene—we predict that his book will win many converts to the faith, and prove a valuable aid to those who are already of the faith but are asking for "more light."

Among the special ailments herein considered are consumption, asthma, dyspepsia, climatic fevers, enteric disorders, nervous maladies, catarrh, pleurisy, etc.

**THE BOAT SAILOR'S MANUAL.** By E. F. Quailtrough, U. S. N. New York: Charles Scribner's Sons. Price \$1.

This is, as stated on the title page, "a complete treatise on the management of sailing boats of all kinds, and under all conditions of weather; containing also concise descriptions of the various rigs in general use at home and abroad, directions for handling sailing canoes, and the rudiments of cutter and sloop sailing." The text is illustrated with numerous plates and engravings. For amateur yachtsmen, and those who are fond of sailing small boats, this is probably the best handbook ever published, and it should be in the possession of everyone who cherishes yachting aspirations, or who has anything to do with the handling of small sail boats. Like everything coming from the Scribners it is gotten up in attractive style.

**WHO IS GUILTY?** By Philip Woolf, M. D. New York: Cassell & Co., (Limited).

A fascinating novel, cleverly written and likely to have many readers. It is bright, fresh and original, and, in several particulars, is out of the line of the average modern novel, a fact that gives to it additional interest.

**CASSELL'S NATIONAL LIBRARY** series is fully up to the standard promised at the start. The issue for May 29, No. 18, is "Lives of the English Poets, Waller, Milton, Cowley."

The books in this series contain about 200 pages each, well-printed on good paper and neatly bound. The price is 10 cents each, or subscription price per year (52 numbers) \$5. They are also bound in cloth at 25 cents per volume.

The latest issues in Cassell's Rainbow Series of original novels are "Scruples" and "A Moral Sinner."

## TRADE NOTES.

THE I. E. M. M. Machinery Co., Lockport, N. Y., have just shipped to Smyrna Basket Co., Smyrna, Del., a 52-inch knife veneer machine for cutting peach and other basket stuff. It is provided with rollers to cut the material to shapes as it comes from the log.

"THE greatest rock breaker and ore crusher on earth—capacity one ton per minute." So says the advertisement of the Gates Iron Works Co., of Chicago, and if their long list of testimonials from many of the leading railroads, pavers and miners of our country is not sufficient to convince one of the immense capacity of this famous crusher, one should be seen in operation. It is a little wonder, and must be seen in operation to be appreciated. The Gates Crusher is being used by many railroads in place of stamps, and for even a small stretch of macadamized road a Gates Crusher would pay for itself. A handsomely illustrated catalogue, containing several plans of plants where the crusher is in use, will be mailed free upon application.

MESSRS. WHEELER & TAPPAN, 88 West Lake street, Chicago, have issued a new catalogue of their steam pumps. The pumps described are those adapted to ordinary purposes, such as feeding boilers, tank pumps, fire pumps, brewery pumps, &c. In addition to these, Messrs. Wheeler & Tappan have constantly on hand, or construct to order at short notice, steam pumps suited for every conceivable purpose where the service of a pump is required. In the list of those who are using their pumps are the names of some of the largest houses in the country in different lines of business.

MANAGERS of cooper shops will be interested in the new catalogue of barrel, keg, hogshead, and stave machinery, issued by Messrs. E. & B. Holmes, Buffalo, N. Y. It is a pamphlet of some 65 pages with illustrated descriptions of everything needed in a cooper shop. The publishers in the introduction say:

"We have succeeded in making our machinery perform the skilled labor in barrel making, so that not only is a large portion of the tight and slack barrels, kegs and small casks used in this country made by it, but it is being introduced and used in the old world, where labor is much lower than in this country. Thus showing, that by the use of ours, like other important labor-saving machinery, men can be used to better advantage in attending machinery than in wearing themselves out by long and tedious labor to accomplish what is perfectly, quickly, easily and profitably done by machinery. It has been our aim to produce machines that would prove effective, durable and profitable."

CATALOGUE D of the Hanika Iron Fence Co., Springfield, Ohio, contains illustrations of their malleable and cast-iron cresting, finials, tower ornaments, weather vanes, stable fixtures, farm and automatic drive gates, iron shutters, vault doors, fire escapes, stair work, &c., &c. It will be of interest to contractors, architects and builders.

## Important.

The improvements of the Grand Union Hotel are simply elegant, and the hotel is always kept in perfect order. It is so convenient to all the depots that guests arriving by the Grand Central Depot have their baggage transferred to and from the Grand Union Hotel in five minutes, free of charge. Guests arriving by steamer or railroad, South, North, East or West, are conveyed to the Grand Union Hotel by the elevated railroad for five to fifteen cents, thereby saving \$3 carriage hire. During the past year 110,000 people occupied the 613 rooms of the Grand Union Hotel at \$1 and upwards per day, including of course its elegant suites of rooms for families on the European plan. The dining-rooms, restaurant, cafe, lunch and wine-rooms were supplied with the best at moderate prices. Families lived better at the Grand Union Hotel, and for less money, than at any other first-class hotel in New York.

THE cuisine and excellent management of the American House, Boston, continue to command most favorable comment, and a "full house" is the response of appreciation which the public bestow on the efforts of its proprietors.

## List of Patents.

The following Patents were granted to citizens of the Southern States, bearing date May 25, 1886. Reported expressly for this paper by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.

|   |         |
|---|---------|
| Albrecht, J. C., Columbus, Ga. Spark-arrester.....  | 342,556 |
| Allfree, J. B., Cumberland, Md. Roller grinding-mill.....                                     | 342,671 |
| Boyce, D. C., Malden, W. Va. Loading and unloading apparatus.....                             | 342,421 |
| Brotherhood, Fred, Charleston, S. C. Drying phosphate rock, etc.....                          | 342,678 |
| Brown, J. A., Chester, S. C. Car-coupling.....  | 342,181 |
| Cavor, Chas., Waco, Texas. Door check.....  | 342,126 |
| Chol, Emmanuel, and D. Monnier, Thibodeaux, La. Burglar alarm.....                            | 342,577 |
| Cole, T. Z., New Orleans, La. Conveyer for dredging and ditching machines (2 patents).....    | 342,583 |
| Conway, Jesse, Baltimore, Md. Mechanical movement.....  | 342,734 |
| Cook, Frederic, and B. Thoens, New Orleans, La. Feed-water regulator.....                     | 342,684 |
| Cox, J. M., Camilla, Ga. Cotton gin.....  | 342,333 |
| Cremer, Henry, Newport, Ky. Firemen's extension-ladder.....                                   | 342,685 |
| Cross, D. L., Austin, Texas. Steam engine.....  | 342,335 |
| Dees, M. A., Moss Point, Miss. Locomotive brake.....  | 342,585 |
| Estes, W. H., Canton, Miss. Combined cotton chopper, scraper and cultivator.....              | 342,342 |
| Farrar, W. B., and J. J. Thornton, Gremsborough, N. C. Tobacco curing barn.....               | 342,591 |
| Flatan, L. S., Pittsburg, Texas. Garden tile.....   | 342,690 |
| Flewellen, Anthony, Sr., Brenham, Texas. Combined cotton chopper and cultivator.....          | 342,691 |
| Floyd, John, and E. J. McCrossin, Lynchburg, Va. Cigarette machine.....                       | 342,344 |
| Fulmer, G. W., Water Valley, Miss. Car-axle journal-bearing.....                              | 342,436 |
| Hayes, G. R., Cambridge, Md. Corn-planter.....  | 342,601 |
| Hemingray, Robert, Covington, Ky. Fastener for jar-tops.....                                  | 342,602 |
| Jacobs, J. M., Baltimore, Md. Circular cloak.....   | 342,359 |
| Johnson, E. D., Milton, Fla. Saw-mill d g.....  | 342,361 |
| Jones, Reuben, Atlanta, Ga. Car-coupling.....   | 342,517 |
| Kennedy, J. J., Cleveland, Tenn. Car-coupling.....  | 342,608 |
| Kenton, L. C., Baltimore, Md. Boot or shoe.....   | 342,752 |
| Kirby, J. H., Coal Valley, W. Va. Miner's combination-box.....                                | 342,365 |
| Ligon, W. A., Sonora, Ky. Carving implement.....  | 342,617 |
| Loomis, R. T., Baltimore, Md. Filter.....   | 342,755 |
| Mann, W. B., Baltimore, Md. Dental vulcanizer.....  | 342,618 |
| Marnell, Nicholas, Savannah, Ga. Dumping car.....   | 342,526 |
| McGehee, C. K., Liberty, Miss. Boiler feeder.....   | 342,528 |
| McKenna, Robert, White, Tenn. Speed-governor.....   | 342,623 |
| McRae, J. B., Mount Holly, Ark. Clamp.....  | 342,529 |
| Mitchell, William, Richmond, Va. Method of strengthening drawers.....                         | 342,626 |
| Murray, S. C., Silver Spring, Tenn. Car-coupling.....   | 342,376 |
| Pattison, A. S., Cambridge, Md. Copy-holder for type writing machines.....                    | 342,707 |
| Pillings, G. T., Baltimore, Md. Automatic flux-feeding attachment for soldering machines..... | 342,383 |
| Reno, Z. T., New Orleans, La. Slide-valve.....  | 342,633 |
| Schuchle, Jacob, San Antonio, Texas. Ice machine.....   | 342,543 |
| Scovel, P. A., Terrell, Texas. Boot-cleaner.....  | 342,642 |
| Simon, Wm., Baltimore, Md. Manufacture of bi chromate of potash (2 patents).....              | 342,646 |
| Teipel, Benj., Covington, Ky. Target-trap and flying target.....                              | 342,718 |
| Vinson, M. R., Hope, Ark. Plow.....   | 342,483 |
| Wharry, J. R., Moundsville, W. Va. Wagon-bed stay.....  | 342,660 |
| Whiteley, J. H., Arlington, Md. Draw-iron for street-cars.....                                | 342,662 |
| Wicks, W. A., Baltimore, Md. Apparatus for preserving fruits.....                             | 342,412 |
| Wicks, W. A., Baltimore, Md. Preserving fruits, vegetables, &c.....                           | 342,413 |

## PATENTS FOR INVENTIONS

(American and Foreign.) Trade Marks, etc., procured through the agency of

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As these Lubricators are covered by patents owned solely by this Company, parties should order only the "DETROIT SIGHT FEED CUPS," thus securing the best article and avoiding all legal complications. Liberal discount to the trade.

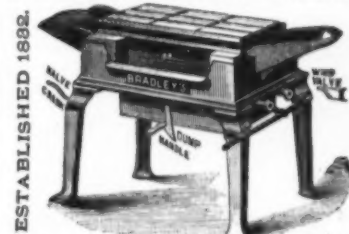
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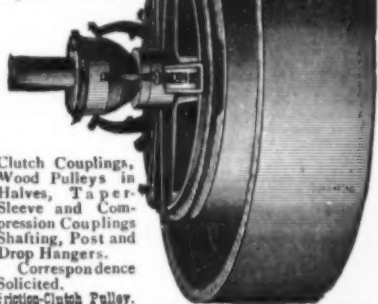


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| Virginia C. B. Charcoal Wheel Iron....                 | 25   | 00@26 | 00 |
| Anthracite, No. 1.....                                 | 18   | 00@19 | 00 |
| " " " " " "  | 16   | 00@17 | 00 |
| " " " " " "  | 15   | 00@16 | 00 |
| " " Moist and White.....                               | 13   | 00@14 | 00 |
| Old Iron Rails.....                                    | 19   | 00@20 | 00 |
| Old Iron Rails, D. H.....                              | 20   | 00@21 | 00 |
| Old Steel Rails.....                                   | 20   | 00@22 | 00 |
| No. 1 Wrought Scrap.....                               | 19   | 00@20 | 00 |
| Old Car Wheels.....                                    | 15   | 00@16 | 00 |

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Kimball's Patent Solid Steel Shovels and Spades.  
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With and Without Punch Attachment, For CUTTING and PUNCHING.

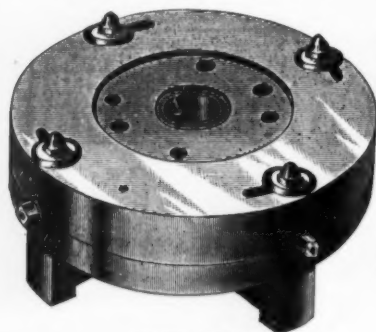
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## NEW PATENT COMBINATION LATHE CHUCK.



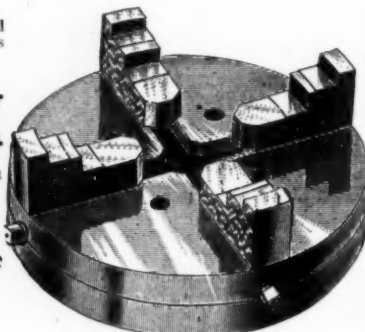
BACK VIEW.

This Chuck is constructed upon the same general principles as the well-known

Horton Chuck

with the additional feature that it can be used either as an

Independent,  
Universal Concentric  
or Eccentric.



FRONT VIEW.

Warranted to be the Strongest, Most Accurate, and Easily Operated Combination Chuck in the market.

TRADE MARK:

The Horton Lathe Chuck.



VIEW OF WORKING PARTS.

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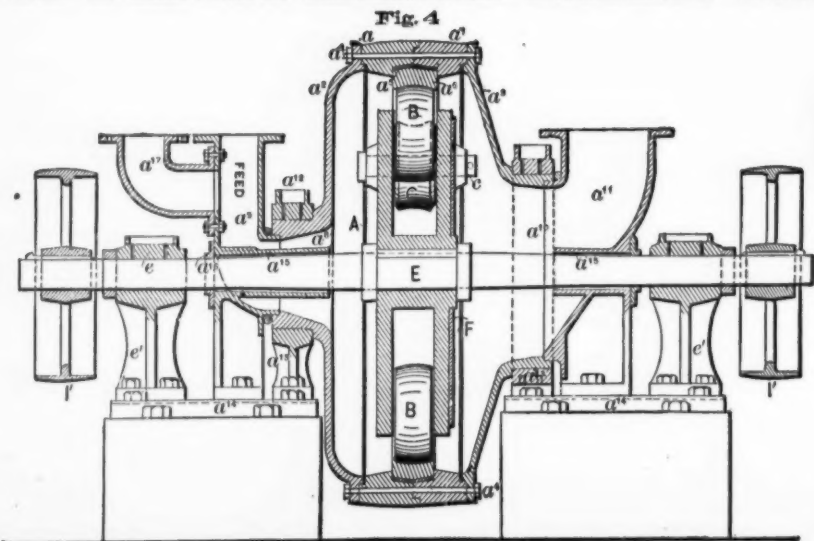
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Trenton..... 10 1/2 c  
Wilkinson's..... 10 1/2 c

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Conn. Valley Mfg. Co..... dis 60&10&10  
Douglass Mfg. Co..... 7 1/2 c from list of  
Ives..... Jan. 7, 1880  
Cook's Douglass Mfg. Co..... dis 60&10  
Grissold..... dis 50&10  
Patent Solid Head..... dis 25  
Russell Jennings' Auger, Dowell, Machine-  
Dowel and Hand Rail Bits..... dis 10&10&10  
Ives' "Jennings" Bits..... dis 40&10&10  
Expansive Bits, Clark's small, 1 1/2; large, 2 1/2..... dis 25  
Expansive Bits, Ives'..... 30c-30, dis 33 1/2  
Expansive Bits Blake's..... 30, dis 40  
Hollow Augers, Ives'..... dis 25  
Hollow Augers, Douglass'..... dis 25&10  
Hol. Aug., Bonney's Adjust., 1/2 doz 1 1/2, dis 25&10  
Hol. Aug., Stearns' Adjust., 1/2 doz 1 1/2, dis 25&10  
Hol. Aug., Ives' Expansive, each 1 1/2, dis 30&10  
Hol. Aug., Universal Expansive, each 1 1/2, dis 20  
Wood's..... dis 25  
Gimlet Bits..... 75c 1/2 gross, dis 50  
Gimlet Bits, Diamond..... 1/2 doz 1 1/2, dis 40  
Double Cut Gimlet Bits, Shephardson's..... dis 40  
Double Cut Gimlet Bits, Douglass'..... dis 33 1/2  
Double Cut Gimlet Bits, Ives'..... dis 50  
Morse's Bit Stock Drill..... dis 25  
L'Hommedieu's Ship Augers..... dis 15

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Sewing Brass Ferrule..... 35c 1/2 gross—dis 40&10  
Patent Sewing, Short..... 1/2 gross—dis 40&10  
Patent Sewing, Long..... 1/2 gross—dis 40&10  
Patent Peg, Plain Top..... 1/2 gross—dis 40&10  
Patent Peg, Leather Top..... 1/2 gross—dis 40&10

## AWLS, BRAD SETS, AC.

Awls, Sewing, Common..... 75c. to 1 1/2  
Awls, Shouldered Peg..... 75c to 1 1/2  
Awls, Patent Peg..... 50c to 1 1/2  
Awls, Shouldered Brad, 1/2 gross 1 1/2—dis 25&10  
Awls, Handled Brad..... 1/2 gross—dis 25&10  
Brad Sets, Aiken's..... 1/2 doz 1 1/2—dis 45&10  
Brad Sets, No. 42, 1 1/2; No. 43, 1 1/2, 50c—dis 70  
Brad Sets, Stanley's Exc. No. 1, 1 1/2, 60c—dis 30&10  
Brad Sets, Stanley's Exc. No. 2, 1 1/2, 60c—dis 30&10  
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Collins & Co..... 75c; beveled..... 75c  
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Gong, Barton's..... dis 30&10  
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| Crossman's No. 1.....   | dis 65&8                     |
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| FILES.  |                              |
| E. M. Boynton's.....  | new list, dis 25             |
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| Butcher's.....  | dis 40                       |
| Moss & Gamble.....  | dis 40                       |
| H. Diaston & Sons (new list).....   | dis 40                       |
| Heller Bros. Horse Rasps.....   | dis 30&8                     |
| Nicholson.....  | dis 55&10                    |
| New American.....   | dis 50&10                    |
| Union File Co.....  | dis 45                       |
| Stubs, new list.....  | dis 25                       |
| FLUTING MACHINES.   |                              |
| Knox, 1/4-inch Rolls.....   | \$3.50 each                  |
| Knox, 1/2-inch Rolls.....   | \$4.00 each                  |
| Knox, 3/4-inch Roll.....  | \$6.50                       |
| Eagle, 3/4-inch Roll.....   | \$2.15, dis 35               |
| Eagle, 1/4-in. Roll.....  | \$2.85, dis 35               |
| Crown, 1/4-in., \$3.50; 1/2-in., \$4.00; 3/4-in., \$4.50 each.....  | dis 35                       |
| American, 1/4-in., \$3.50; 1/2-in., \$4.00; 3/4-in., \$4.50 each.....   | dis 35                       |
| Domestic Fluter.....  | \$1.50 each, net             |
| Geneva Hand Fluter, White Metal, 1/2 doz \$12.25; 1 doz \$12.50; 3 doz \$12.50; 4 doz \$12.50; 5 doz \$12.50; 6 doz \$12.50; 7 doz \$12.50; 8 doz \$12.50; 9 doz \$12.50; 10 doz \$12.50; 11 doz \$12.50; 12 doz \$12.50; 13 doz \$12.50; 14 doz \$12.50; 15 doz \$12.50; 16 doz \$12.50; 17 doz \$12.50; 18 doz \$12.50; 19 doz \$12.50; 20 doz \$12.50; 21 doz \$12.50; 22 doz \$12.50; 23 doz \$12.50; 24 doz \$12.50; 25 doz \$12.50; 26 doz \$12.50; 27 doz \$12.50; 28 doz \$12.50; 29 doz \$12.50; 30 doz \$12.50; 31 doz \$12.50; 32 doz \$12.50; 33 doz \$12.50; 34 doz \$12.50; 35 doz \$12.50; 36 doz \$12.50; 37 doz \$12.50; 38 doz \$12.50; 39 doz \$12.50; 40 doz \$12.50; 41 doz \$12.50; 42 doz \$12.50; 43 doz \$12.50; 44 doz \$12.50; 45 doz \$12.50; 46 doz \$12.50; 47 doz \$12.50; 48 doz \$12.50; 49 doz \$12.50; 50 doz \$12.50; 51 doz \$12.50; 52 doz \$12.50; 53 doz \$12.50; 54 doz \$12.50; 55 doz \$12.50; 56 doz \$12.50; 57 doz \$12.50; 58 doz \$12.50; 59 doz \$12.50; 60 doz \$12.50; 61 doz \$12.50; 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|                             |                               |
|-----------------------------|-------------------------------|
| Door Mineral.....           | Same discounts as Door Locks. |
| Door Por. Jap'd.....        |                               |
| Door Por. Plated.....       |                               |
| Door Por.....               |                               |
| Furniture Plain.....        | 75c gross inch, dis 10        |
| Furniture, Wood Screws..... | dis 20                        |
| Picture.....                | dis 30                        |
| Hemacite, Picture.....      | dis 35                        |
| Shutter, Porcelain.....     | dis 50                        |

## LADIES.

Melting &amp; Skim'ng, Monroe's Pat. doz 44, dis 40

Melting, C &amp; C..... dis 10

## LAWN MOWERS.

Acme Buckeye, Easy &amp; Excelsior, new list, dis 40

LINES..... dis 25

Wire Clothes, Galvanized, 100 feet..... doz 3.00

## LOCKS AND LATCHES.

Cabinet, Eagle..... Changes made in list price

Cabinet, Gaylord..... of some numbers Jan. 1,

Cabinet, Bridgeport..... 1881, dis 25

Cabinet, P. &amp; F. Corbin..... dis 40

Trunk, new list, Jan. 1, 1881..... dis 15

Yale Lock Co., Flat Key..... dis 40

Plate..... dis 33

## DOOR LOCKS, ETC.

Bradford.....

Norwalk.....

Norwich.....

P. &amp; F. Corbin..... List prices as revised

Russell &amp; Erwin..... Dec. 18th, 45

Mallory, Wheeler &amp; Co..... for cash.

Nimick &amp; Brittan Mfg. Co.....

Padlocks—Russell &amp; Erwin.....

Mallory, Wheeler &amp; Co..... dis 70

Norwich Lock Mfg. Co..... and 25 for cash.

Wm. Wilcox &amp; Co.....

Nimick &amp; Brittan Mfg. Co.....

Wm. Wilcox &amp; Co's "Standard"..... dis 33

Yale Lock Mfg. Co's "Standard"..... dis 40

Romer's..... dis 25

Conestoga..... dis 80

Scandinavian, "Norwich"..... dis 50

Nimick &amp; Brittan's Burglar-Proof Locks..... dis 50

## MALLETS.

Penfield Block Co., Apple, Hickory and

Lignumvitae..... dis 30

## MEAT CUTTERS.

Dixon's (P. S. &amp; W.) Nos. 1 2 3 4

Perry's, Nos. 1 2 3 4 5 6 7 8 9 10

Each..... dis 15

Woodruff's (P. S. &amp; W.) Nos. 100 150

Hales'..... Nos. 11 12 13

Kieser's No. 55..... dis 27

Kieser's Gem..... dis 40

Kieser's No. 82..... dis 40

Kieser's Monarch..... dis 40

Beef Shaver, (Enterprise Mfg. Co.)..... dis 25

## MOLASSES GATES.

Stebbins Patterns..... dis 70

Stebbins Genuine..... dis 67

Stebbins Tinned Ends..... dis 40

Chase's Hard Metal..... dis 40

Self-Measuring, (Enterprise)..... dis 20

Lincoln's Pattern..... dis 60

Weed's..... dis 15

## Boss Nos. 1 2 3 4

Boss, Japanned Finish..... dis 60

Boss, Bronze Finish..... dis 60

## NUTS AND WASHERS.

Square Nuts..... 8 c off list.

Hexagon Nuts..... 8 1/2 c off list.

Washers..... 7 1/2 c off list.

## OILERS.

Zinc and Tin..... dis 60

Brass and Copper..... dis 50

Malleable (Hammer's)..... dis 50

## PINKING IRONS.

Per dozen..... 75 cts. net

## PLAITING MACHINES.

Astor Plaiting Machine..... each \$15, dis 20

Crown Plaiting Machine..... dis 25

## PLANES AND PLANE IRONS.

Bench, First Quality..... dis 20

Bench, Second Quality..... dis 25

Molding..... dis 15

Bailey's (Stanley R. &amp; L. Co.) New List, Jan. 1879..... dis 20

The Stanley (S. R. &amp; L. Co.) New List, January 1879..... dis 20

Bailey's..... dis 20

Plane Irons, Butcher's..... \$5.50 to 4

Plane Irons, Auburn Tool Co..... dis 20

Plane Iron, Ohio Tool Co..... dis 20

Plane Irons, Sandusky Tool Co..... dis 20

## PLIERS AND NIPPERS.

Button's Patent..... dis 33

Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in. \$13.50; No. 4, 7 in. \$21 doz..... dis 25

Gas Pliers..... dis 50

Cronk's Patent Cutting Pliers: 8 inch \$15.00; 10 inch \$21.00..... dis 35

## PLUMBS AND LEVELS.

Diston's..... dis 40

Stanley R. &amp; L. Co.'s Pat. Adjustable..... dis 60

Stanley R. &amp; L. Co.'s Non-Adjustable..... dis 60

Chapin's Patent Adjustable..... dis 60

Chapin's Non-adjustable..... dis 60

Standard Rule Co.'s New Adjustable..... dis 60

Standard Rule Co.'s Non-Adjustable..... dis 60

Pocket Levels..... dis 65

## RAIL.

Sliding Door, Wrought Brass..... \$4.30, dis 30

Sliding Door, Bronzed Wrt. Iron..... \$4.12, dis 35

Sliding Door, Iron, Painted..... \$4.12, dis 35

Barn Door..... 1/2 3/4 5/8

Per 100 feet..... \$2.60 3.60 5.60-dis 10

B. D. for N. E. Hangers—

Per 100 feet..... Small. Med. Large.

Iron and Tinned, new list, Dec. 10, 1881..... dis 50

In bulk, new list, Dec. 10, 1881..... dis 45

Copper Rivets and Burrs..... dis 60

Nos. 7 8 9 10 11 12 13 14 15

\$1.40c. 50c. 54c. 56c. 58c. 60c. 62c. 70c.

RIVET SETS..... dis 40

## RODS.

Stair, Brass..... dis 25

Stair, Black Walnut..... 60c doz.—net

## RULES.

Boxwood..... Ivory.

Chapin's..... dis 80

Standard..... dis 50

Stanley..... dis 50

Stevens &amp; Co..... dis 50

Stevens &amp; Co. Miscellaneous..... dis 50

## SAD IRONS.

Self-Heating, Charcoal..... doz 9.00 net

Mrs. Pott's Irons..... dis 35

Enterprise Star Irons, new list, July 20, '82..... dis 35

Comb'd Fluter and Sad Iron..... doz \$15.00, dis 15

Common Sad Irons..... 1/2 c

## SAFETY PAPER.

Baeder &amp; Adamson's Flint, 1000, \$4.50 r'm..... dis 40

Baeder &amp; Adamson's Flint, 2000, \$4.50 r'm..... dis 40

Baeder &amp; Adamson's Flint, Assort'd 4.75 r'm..... dis 40

Baeder &amp; Adamson's Star..... 3.75 r'm..... dis 40

Baeder &amp; Adamson's Emery r'm \$6.50 to \$11.50..... dis 40

Bartle's Sand, Flint and Emery Paper..... dis 30

|  |                 |
|--|-----------------|
| Clancy's No. 100, per gross.....                             | dis 90          |
| Nimick & Brittan Mfg. Co.....                                | dis 50          |
| BASH LOCK.   |                 |
| Common.....  | \$1.40c. net    |
| Patent.....  | \$1.70c. net    |
| Silver Braided Lake Hemp.....                                | \$1.50c. dis 10 |
| Silver Braid, Lake White Cotton.....                         | \$1.50c. dis 10 |
| Silver Braided Lake Drab Cotton.....                         | \$1.50c. dis 10 |
| Silver Lake Cable Laid, Bengall Unbleached Hemp, 17 cts..... | dis 10          |
| Russian Hemp, 19 cts.....                                    | dis 10          |
| Italian Hemp, 14 cts.....                                    | dis 10          |
| Samson Braided, white cotton.....                            | dis 30          |
| drab cotton.....   | dis 30          |

## SASH WEIGHTS.

Solid Eyes, in 500-lb. lots and over, \$1.15 c. net

## SAUSAGE STUFFERS OR FILLERS.

Miles..... doz. \$2.00, dis 25

Enterprise Mfg. Co..... No. 15 No. 2, \$2.10, dis 25

Monarch..... dis 40

## SAWS.

Boynnton's Lightning Cross Cuts, new list..... dis 40

Boynnton's Circular and Mill..... dis 25

Boynnton's Lightning Hand, Panel and Rip..... dis 25

Disston's Circular..... dis 40

Disston's Cross Cut..... dis 40

Disston's Hand, Panel, Rip, &amp;c..... dis 20

Hubbard, Bakewell &amp; Co. Circular Saws..... dis 40

Hubbard, Bakewell &amp; Co. Cross Cut..... 30c. ft.

Hubbard, Bakewell &amp; Co., One-Man's, X Cut..... dis 40

Hubbard, Bakewell &amp; Co., Mill Saws..... dis 40

Peace Circular and Mill..... dis 40

Peace Hand, Panel and Rip..... dis 25

Peace Cross Cuts..... dis 35

Peace Band Saws, all widths..... dis 10

Webster Cross Cut, with handles..... dis 25

Griffin's Hack Saws and Blades..... dis 30

## SAW FRAMES.

White..... doz \$1.05, dis 10

Saw Rods..... \$1.10 list, dis 10

## SAW SETS.

Stillman's Genuine, \$1.30 and \$1.50..... dis 10

Stillman's Imitation..... \$1.30, dis 10

Common Lever..... doz \$2.00, dis 30

Leach's..... No. 5, \$2.00; No. 1, \$1.15, dis 15

Hammer, Hotchkiss..... \$1.50, dis 10

Aiken's Genuine..... \$1.30, dis 10

Aiken's Imitation..... \$1.00, dis 10

Disston's..... dis 20

Morrill's..... No. 1, \$1.15; No. 5, \$1.25; dis 35

## SCALES.

Hatch, Counter, No. 171..... doz \$4.25, dis 37

Hatch, Tea, No. 161..... doz \$15.00, dis 37

Union Platform, Keystone..... \$6, dis 45

Chicago Scale Co..... Special dis

Forsyth Scale Co..... dis 45

Howe's..... dis 20

Chatillon's Grocers'..... dis 40

Chatillon's Eureka..... dis 25

Family Universal..... dis 50

Family Favorite..... dis 30

Family Turnbull's..... dis 30

Scale Beams, List of Jan. 12, 1882..... dis 0

## SCRAPERS.

Adjust. Box Scraper (S. R. &amp; L. Co.) \$6.50, dis 20

Box, 1 Handle..... doz \$4, dis 10

Box, 2 Handle..... doz \$6, dis 10

Foot, common..... dis 45

Ship, common..... doz \$3, net

Wilson Mfg. Co..... dis 10

## SCREW DRIVERS.

Douglas Mfg. Co..... dis 20

Disston's..... dis 40

Cowles Mfg. Co..... dis 50

Stanley Rule &amp; Level Co.'s Var. Hds..... dis 50

Stanley Rule &amp; Level Co.'s Black Hds..... dis 40

Ratchet..... dis 33

Clark's Patent..... dis 25

Shepardson..... dis 25

## SCREWS.

Standard new list, Feb. 15.

Flat Head Bright..... 75 &amp; 10

Round Head Blue..... 70 &amp; 10

Flat Head Brass..... 75

Round Head Brass..... 70

Brass and Silver Capped..... 40

Japanned Flat Head..... 70 &amp; 10

Coach, Patent Gimlet Point..... dis 75

Coach, Common or Lag..... dis 60

Bed..... dis 10

Machine, Flat Head, Iron..... dis 55

Machine, Round Head, Iron..... dis 50

Bench, Iron..... dis 50

Bench, Wood, Beach..... doz \$3.00, dis 10

Bench, Wood, Hickory..... dis 20

Hand, Wood..... dis 20

Hand Rail, Sargent's..... dis 60

Hand Rail, Humason, Beckley &amp; Co.'s..... dis 40

Hand Rail, Am. Screw Co., list Jan. 1, '81..... dis 70

Jack (Wilson's)..... dis 25

## SCREEN FRAMES AND MIXTURES.

Standard Window Screens No. 1, \$1.20; 2, \$1.50

Door..... No. 5, \$1.15; dis 50

Window Corner Irons, No. 3, doz. st's, \$2

Door..... No. 6, \$1.30

Door Latches, \$1.60, dis 50

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PER BOX, SETS

In 1m. Bl'k

White. Walnut.

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No. 22..... 5.50 6.75

No. 23..... 6.00 7.50

No. 30..... 9.00 11.00

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No. 1. Corners and Sticks complete for a

three-foot window, \$1.20 sets..... \$4

No. 1. Set for Window, \$1.20 sets, Bronzed,

\$2.40; Nickel, \$2.60

No. 1 1/2. " " \$2.25; Nickel, \$2.50

No. 4. " " \$2.00; Nickel, \$2.20

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No. 6. " " or door, \$1.20; Nickel, \$1.40

No. 7. " " or door, \$1.20; Nickel, \$1.40

No. 8. " " or door, \$1.20; Nickel, \$1.40

No. 9. " " or door, \$1.20; Nickel, \$1.40

No. 10. " " or door, \$1.20; Nickel, \$1.40

No. 11. " " or door, \$1.20; Nickel, \$1.40

No. 12. " " or door, \$1.20; Nickel, \$1.40

No. 13. " " or door, \$1.20; Nickel, \$1.40

No. 14. " " or door, \$1.20; Nickel, \$1.40

No. 15. " " or door, \$1.20; Nickel, \$1.40

No. 16. " " or door, \$1.20; Nickel, \$1.40

No. 17. " " or door, \$1.20; Nickel, \$1.40

No. 18. " " or door, \$1.20; Nickel, \$1.40

No. 19. " " or door, \$1.20; Nickel, \$1.40

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No. 23. " " or door, \$1.20; Nickel, \$1.40

No. 24. " " or door, \$1.20; Nickel, \$1.40



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 Sliding Door, M. W. & Co., List.....dis 45¢  
 Sliding Door, R. & E. list.....dis 60¢  
 Sliding Door, Patent Roller.....dis 60¢  
 Sliding Door, Pt. Roller, Hatfield's.....dis 60¢  
 Sliding Door, Russell's Anti-Friction.....dis 60¢  
 Also see Hangers.

**SHOVELS AND SPADERS.**  
 Ames, New List, July 1, 1887.....dis 15¢  
 Griffiths.....dis 50¢  
 Remington's (Lowman's Patent).....dis 30¢  
 Rowland's.....dis 60¢  
 Kimball's.....dis 35¢  
 Lippincott, new list.....dis 20¢  
 Hussey, Bins & Co.....dis 15¢

**SPOKE TRIMMERS.**  
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 Ives'.....dis 10¢  
 Douglass.....dis 10¢

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 Holmes, Booth & Hayden.....dis 40¢  
 Brown Bros.....dis 40¢  
 Wallace's Steel Silver Plated.....dis 33¢  
 Rogers Bros 1847.....dis 50¢  
 C. Rogers & Bro.....dis 40¢

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 Covert's Adjustable Coppers.....dis 35¢

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 Tinned, Iron, Table and Tea.....dis 65¢  
 Tinned Iron Basting.....dis 65¢  
 German Silver.....dis 40¢

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 Sand Stone.....dis 33¢  
 Washita Stone.....dis 16¢  
 Washita Stone, Slips.....dis 45¢  
 Arkansas.....dis 50¢

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 Iron.....dis 60¢  
 Nickel Plated.....dis 50¢  
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 Swedes Iron Carpet Tacks, all kinds.....dis 60¢  
 Swedes Iron Tacks.....dis 60¢  
 Swedes Iron Upholsterers' Tacks.....dis 60¢  
 Tinned Swedes Iron Upholsterers' Tacks.....dis 60¢  
 American Iron Cut Tacks.....dis 55¢  
 Gimp and Lace Tacks.....dis 50¢  
 Tinned Gimp and Lace Tacks.....dis 50¢  
 Copper Tacks.....dis 50¢  
 Copper Finishing and Trunk Nails.....dis 50¢  
 Cigar Box Nails.....dis 50¢  
 Finishing Nails.....dis 50¢  
 Trunk and Clout Nails.....dis 50¢  
 Tinned Trunk and Clout Nails.....dis 50¢  
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 Game, Blake's Patent.....dis 40¢  
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 Mouse, Catch-em-alive.....dis 10¢  
 Cyclon Mouse.....dis 75¢  
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 Boss.....dis 100¢  
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 Diaston's Brick and Plastering.....dis 20¢  
 Clement & Maynard's.....dis 20¢  
 Worrall's Brick.....dis 20¢  
 Brades & Walby's.....dis 20¢  
 Garden.....dis 55¢

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 Handy Truck.....dis 25¢  
 Penfield Block Co.'s list, 1888.....dis 35¢  
 Peerless, with Cogs, No. 3.....dis 50¢  
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 Eureka, No. 2.....dis 40¢

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 "Trenton.....dis 45¢  
 "Iron City Tool Works.....dis 50¢  
 Bench-Wilson's.....dis 45¢  
 "Trenton.....dis 25¢  
 "Parker's.....dis 20¢  
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 "Bonney's.....dis 35¢  
 Well Wheels.....dis 60¢  
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 Brass and Copper, list of Jan. 17, 1884.....dis 30¢  
 Bright and Annealed.....dis 18¢  
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 Coppered.....dis 18¢  
 Galvanized, Nos. 0 to 18.....dis 40¢  
 Tinned, Nos. 0 to 18.....dis 60¢  
 Tinned Broom Wire, Nos. 18 to 25.....dis 60¢  
 Annealed Fence, Nos. 889.....dis 55¢  
 Annealed Grape, Nos. 10 to 14.....dis 50¢  
 Fence Staples, Galvanized.....dis 50¢  
 Japanned Barb Fence.....dis 40¢  
 Galvanized Barb Fence.....dis 50¢  
 Buck Thorn Galvanized.....dis 50¢  
 Picture Wire.....dis 60¢  
 Clothes Line Wire, Galvanized.....dis 75¢  
 Wire Cloth, gree, drab and black.....dis 5¢

**WRENCHES.**  
 American Adjustable.....dis 45¢  
 Baxter's Adjustable "S," list Jan. 1880.....dis 20¢  
 Baxter's Diagonal.....dis 20¢  
 Coes' Genuine.....dis 60¢  
 Coes' "Mechanics".....dis 60¢  
 Coes' Pattern, Malleable.....dis 75¢  
 Coes' Pattern, Wrought.....dis 60¢  
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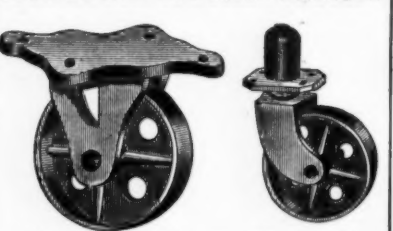
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 Universal, XX, No. 2½.....dis 30¢  
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 Universal, XX, No. 1½.....dis 25¢  
 Universal, XX, No. 1.....dis 25¢  
 Universal, XX, No. 2.....dis 10¢  
 Universal, XX, No. 12.....dis 20¢  
 Universal, XX, No. 18.....dis 25¢  
 Universal, XX, No. 22.....dis 30¢  
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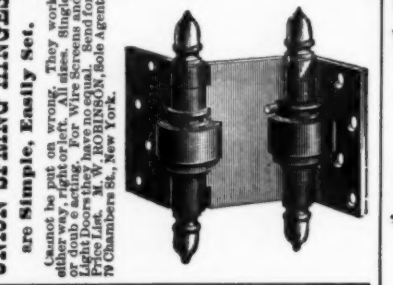
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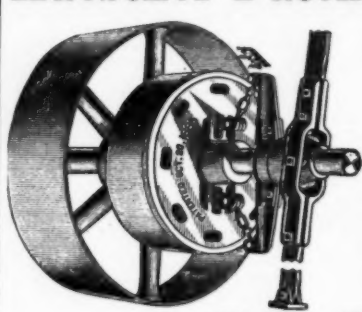
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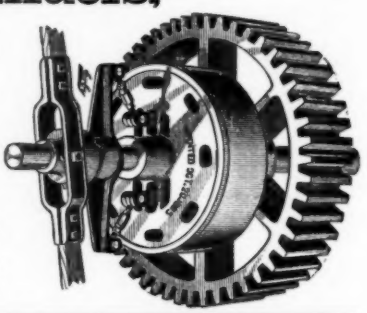
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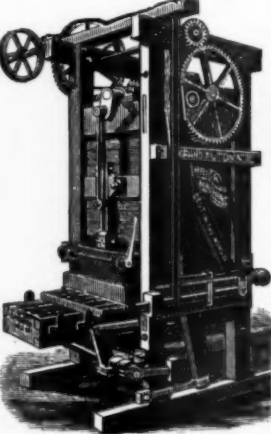
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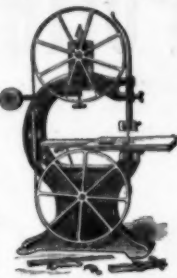
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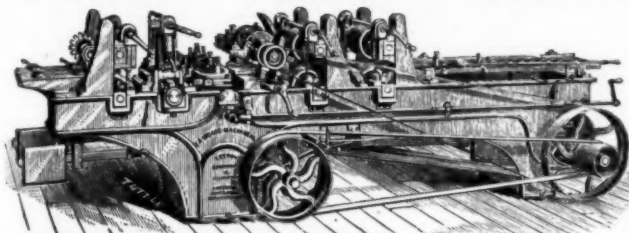
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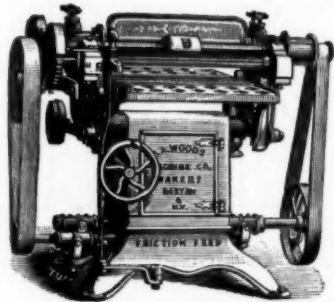


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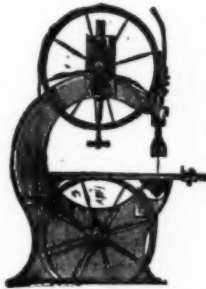
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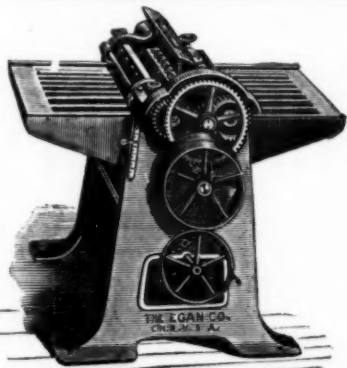
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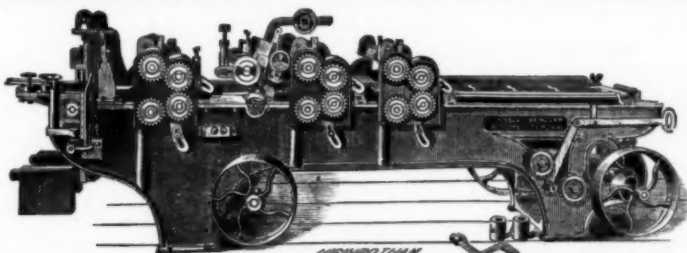
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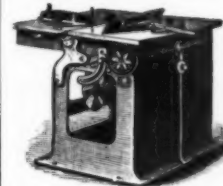


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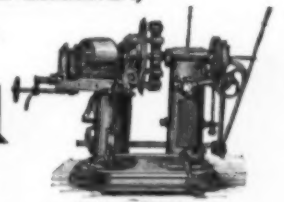
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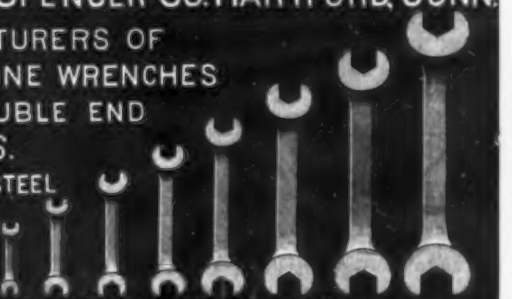
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AND ALL DESCRIPTIONS OF STEEL AND IRON DROP FORGINGS.





No. 70.

SIZES.  
20 Gallons.  
35 "  
70 "  
100 "

Fig. 133.  
Improved Steam Jacket Kettle  
PLAIN OR ENAMELED.



SIZES.  
1 Gallons.  
6 "  
10 "  
15 "  
25 "  
30 "  
50 "  
60 "  
80 "  
125 "

Fig. 134.  
Double Jacket Steam Kettle.



SIZES.  
2 1/2 Gallons.  
9 "  
12 "  
20 "  
37 "

Fig. 136.  
Iron Double-bottom Steam Kettle.  
WITHOUT JOINTS.

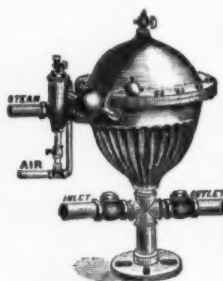
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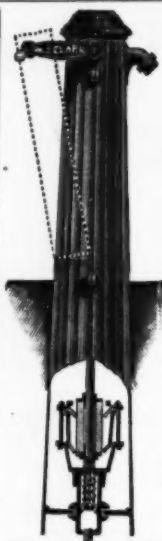
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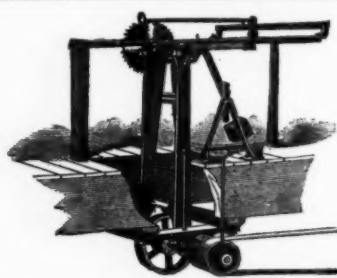
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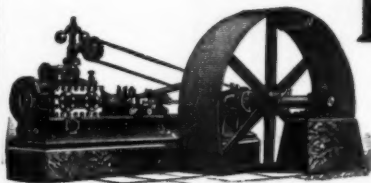
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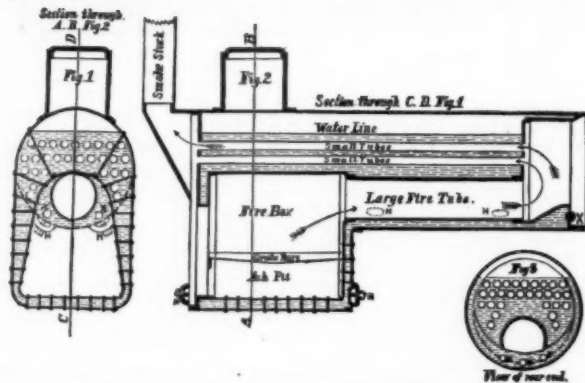
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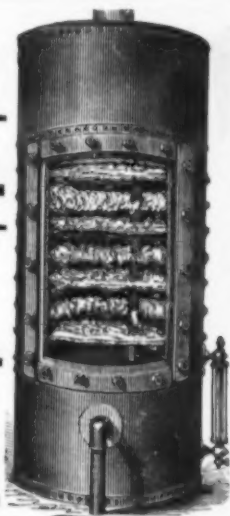
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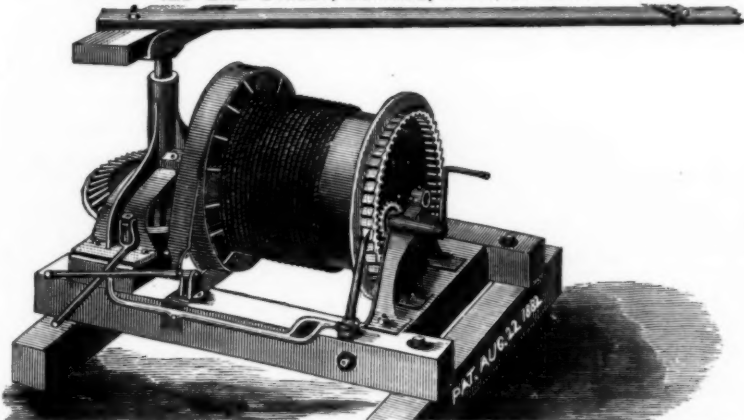
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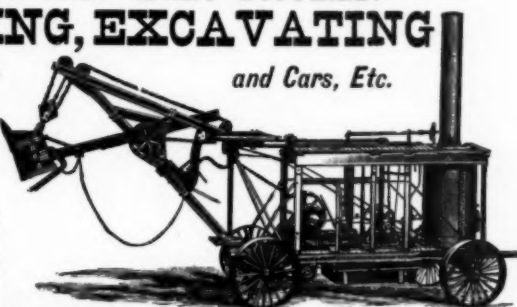
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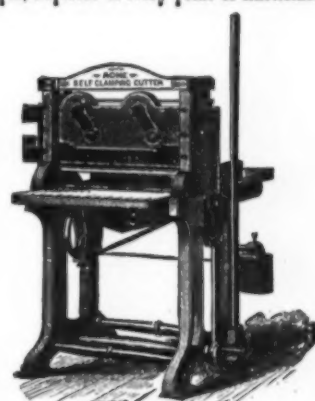
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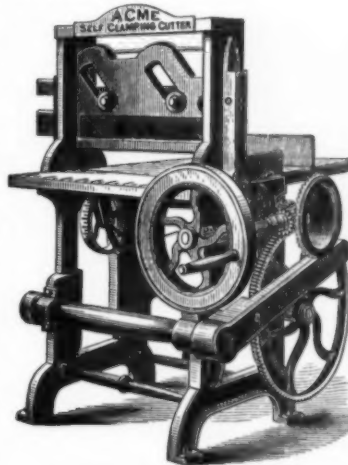
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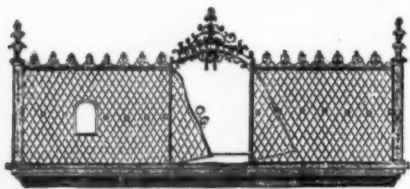
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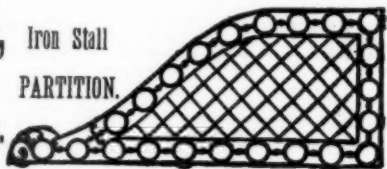


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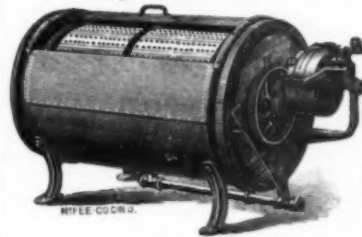
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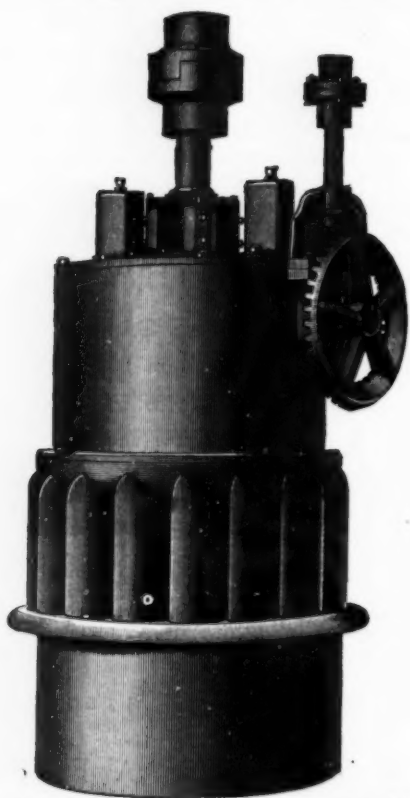
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A good Water Wheel increases the value of your whole plant. Get the best at first and avoid the expense and delay of changing wheels. A good wheel will serve you well for twenty years. The best is the cheapest,—it does more work, lasts longer, and costs no more for gears and setting than a common wheel. The HERCULES gives the most power for its size, and the highest average percentage from full to one-half gate, of any wheel ever made.

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**HOLYOKE MACHINE CO., WORCESTER, MASS.**

Wheels Now in Use in Holyoke, February 1st, 1885.

| Name of Wheel.           | Number. | Horse-Power Furnished. |
|--------------------------|---------|------------------------|
| Hercules.....            | 53      | 10,576                 |
| Boyden.....              | 38      | 5,398                  |
| American.....            | 10      | 825                    |
| Tyler.....               | 10      | 311                    |
| Hunt, Waite & Flint..... | 7       | 375                    |
| Riflon.....              | 6       | 440                    |
| Jouval.....              | 4       | 655                    |
| Swain.....               | 1       | 160                    |
| New American.....        | 1       | 65                     |
| Aousten.....             | 1       | 75                     |
| Victor.....              | 2       | 150                    |
| Total.....               | 133     | 19,030                 |

**EAGLE & PHENIX MANUFACTURING CO.,**

COLUMBUS, GA., Feb. 25, 1885.

HOLYOKE MACHINE CO., STEPHEN HOLMAN, Treas.:

Dear Sirs—Within the past four years I have ordered four "Hercules" wheels, all of which have given the purchasers entire satisfaction. Three of the wheels are on regular duty in the Eagle & Phenix Mills. The first wheel ordered did so well that a "Hercules" wheel has been added each time a new wheel was wanted. In Eagle & Phenix Mills I supervise twenty water wheels of six different styles. The "Hercules" is by far the most durable and best made wheel in use here, and, in fact, I know of no wheel its equal, mechanically. It is all that can be desired in economy of water. In fact, it is a strictly first-class wheel in every way, and the wheel to buy, use and depend upon. Yours truly, JOHN HILL.

**CONNECTICUT RIVER PULP MILL.,**

HOLYOKE MACHINE CO.: HOLYOKE MASS., November 24, 1884.

We are now using 22 "Hercules" wheels, under heads from 13 to 40 feet, and they have always given satisfaction. We have used a variety of Turbines, but where economy in the use of water is required nothing equals the "Hercules." In every respect they are first class.

D. H. & J. C. NEWTON.

**GEORGE R. DICKINSON PAPER CO.,**

HOLYOKE MACHINE CO.: HOLYOKE, MASS., December 17, 1884.

Gentlemen—We started our mill with three "Hercules" wheels. We raise the gates Monday morning and close them Saturday night. They have never cost us a cent for repairs nor caused us a moment's delay. We want nothing better. Yours very truly. GEORGE R. DICKINSON, Treas.

# THE BERRYMAN Patent Feed Water Heater and Purifier

The Shells of the Berryman are of C H No. 1 iron, and tested to 175 pounds cold water. Every heater is guaranteed to be absolutely tight, making it the only Feed Water Heater applicable to a Condensing Engine, increasing the vacuum and imparting a high degree of heat in the feed water, saving eight to ten per cent.

## THE BERRYMAN

has been in constant use for more than 12 years in all parts of the United States and Europe, and none have ever needed repairs. It gives the highest result attainable by the use of exhaust steam.

Boiler repairs, and the vexation by shutting down when in a hurry, are saved. The trouble and expense of throwing out a poor heater and putting in a good one are saved by the use of THE BERRYMAN FEED WATER HEATER AND PURIFIER.

All Oil or Fatty Matter is excluded from the boilers, as the feed water and exhaust steam do not come in contact by the use of THE BERRYMAN FEED WATER HEATER AND PURIFIER.

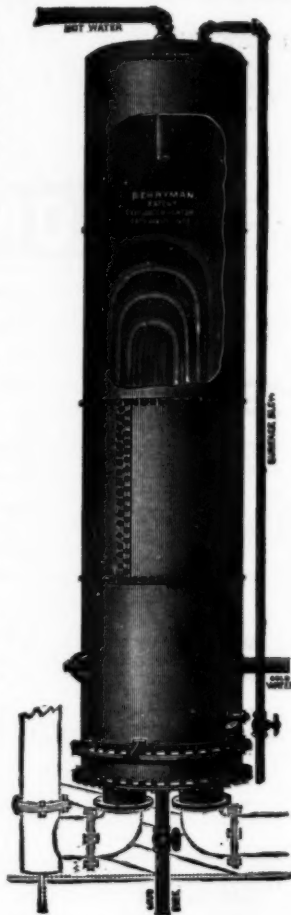
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Sole Proprietors & Manufacturers in the U. S.

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Philadelphia Office, 125 North 4th St., JAS. BERRYMAN, Manager.

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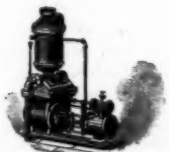
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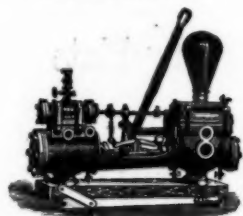
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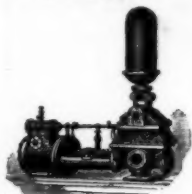
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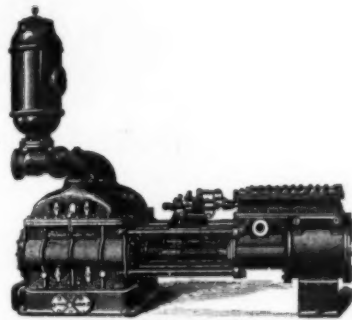


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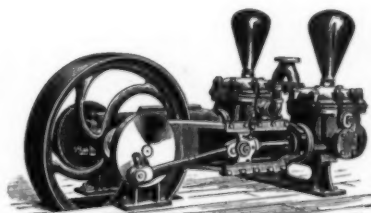


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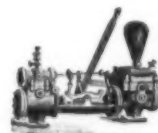
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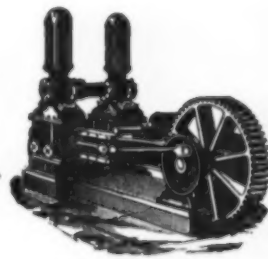
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GENTLEMEN—In reply to yours of the 8th, we take pleasure in saying that since you overhauled and programmed our mill and put in the Stevens Rolls, we have had what we never before had, i. e. a mill that is entirely satisfactory in the matter of separations and quality of work done. We have also been able to turn out more flour than we expected, having for the past month made an average of 360 bbls. per day. Our millers are as highly pleased as we are, and say it is not half the trouble to keep the grades uniform as it was heretofore. Wishing you continued prosperity, we are, Yours truly,

COLTON BROS.

E. C. HUXLEY, Pres.

T. L. STURTEVANT, Treas.

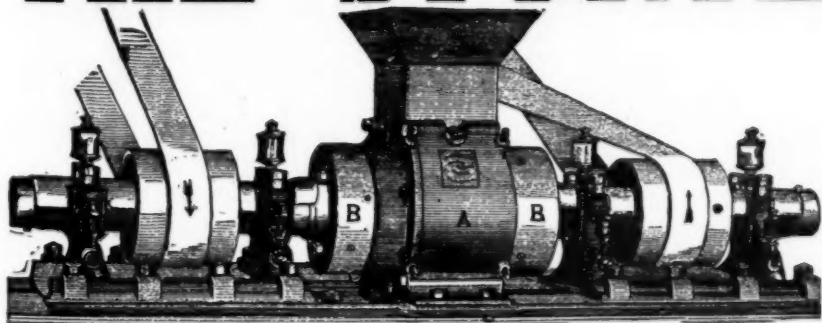
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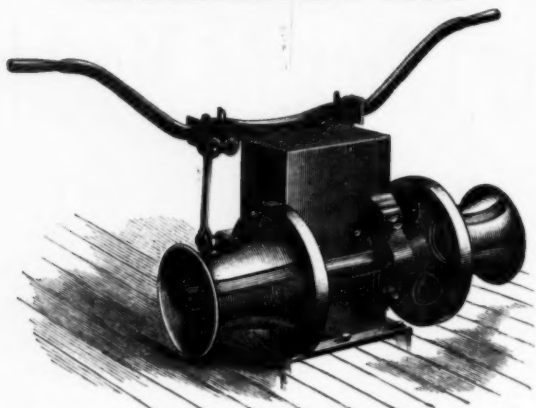
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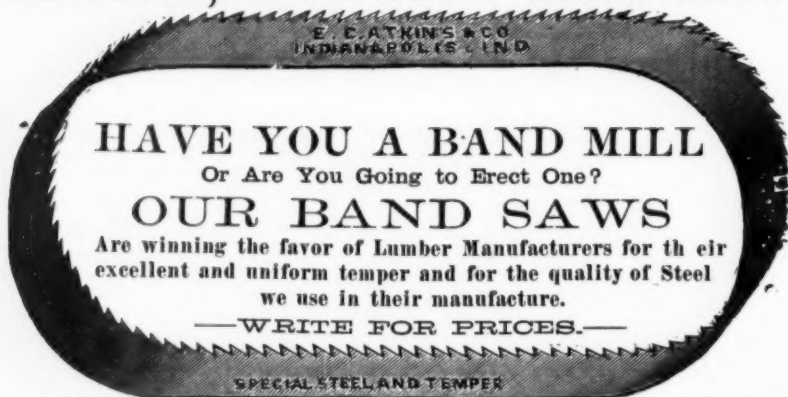
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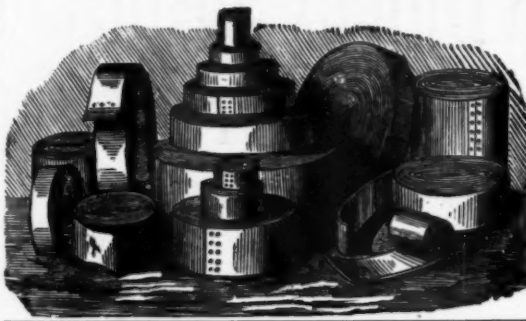
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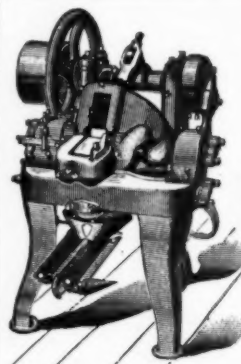
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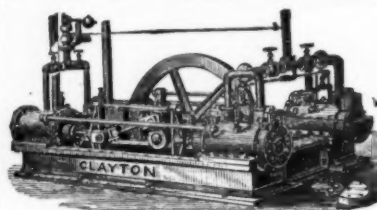
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